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ABSTRACT

This paper analyzes efficiency and equity issues in public expenditures on education and health in Ghana during the 1990s. Data were drawn from reports of the ministries of education and health and from household surveys conducted 1988-98. In the late 1990s, Ghana's public expenditures on education decreased. Basic education enrollment was stagnant or declined in the public sector while increasing in private schools. Regional disparities were significant, with lower allocations of public resources and lower enrollment rates in the three poorest regions. These regions also had critical shortages of teachers and classrooms at both primary and junior secondary levels. The quality of public basic education remained very poor, and post-basic education enrollment rates lagged behind those of basic education. Ghana's public health expenditures benefited primarily the nonpoor. While health services reached more rural areas in recent years, many rural areas still had limited or no access to health services. Analyses highlight a lack of relationship between public health expenditures and health outcomes, particularly for child immunizations. Data tables present details on enrollment rates, expenditures by education level and region, pupil-teacher ratios, results of criterion-referenced tests, rural-urban differences in male and female enrollments and education expenditures, health expenditures, distribution of health facilities and personnel, child immunizations by region and for rural and urban areas, hospital admissions, reported illnesses, and treatments in rural and urban areas. (Contains 22 references.) (Author/SV)

**Public Health and Education Spending in Ghana in 1992-98:
Issues of Equity and Efficiency**

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Public Health and Education Spending in Ghana in 1992-98: Issues of Equity and Efficiency

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Abstract

This paper analyzes the efficiency and equity issues in public expenditures in the health and education sectors in Ghana during the 1990s using primary data from the line Ministries and household survey data from the Ghana Statistical Service. The paper highlights Ghana's decrease in public expenditures in the education sector in the latter part of the 1990s. Public school basic education enrollment has primarily been stagnant or declining. However, basic education enrollment has increased in private schools, resulting in a moderate increase in the total enrollment in Ghana. The regional disparity is significant, with lower allocations of public resources and lower enrollment ratios among the three poorest regions. The quality of public basic education remains very poor, while that of the private schools has improved steadily. Additionally, post-basic education enrollments are lagging behind that of basic education. In terms of health indicators, although Ghana ranks high among West African countries, health expenditures are pro non-poor. While the health services have reached more of the rural population in recent years, a large number of them still has limited or no access to health services. Also, the analysis highlights the lack of a relationship between the pattern of public expenditures and health outcomes, especially for the pattern of immunization across Ghana. This paper argues that public expenditures need to be linked to the outcomes to ensure that social services are efficiently and equitably delivered in a fiscally constrained economy.

Section 1: Introduction

As stated in the "Development Strategy for Poverty Reduction" (DSFPR) by the Ghana Ministry of Finance (MOF), the Government of Ghana (GOG) is committed to the reduction of poverty and a general improvement in the welfare of Ghanaians. To achieve broad-based growth resulting in effective poverty reduction, an investment in human capital has been identified as one of the high priorities. The GOG has decided to increase total government budget allocation to the social services from 17.4 to 22.5 percent by 2002, with an emphasis on improving access to services for the poor. However, increasing the budget is only half the battle. The systems that take the resources and produce the services must also be effective, efficient, and pro-poor, in order to make an impact on the ground.

This public expenditure review and benefit incidence study, using primarily data from line ministries and household survey data from 1998, is the first part of a two-part study. The second part of the study, in a separate report, includes a tracking survey to estimate the proportion of the line ministries' spending that had actually reached service-providing facilities.

The objectives of the public expenditure review (PER) and the tracking survey are consistent with the DSFPR. First, the PER is to evaluate the pro-poorness and effectiveness of the health and education sectors by examining the operating systems, resource distribution, and service utilization. The results of this study will be compared with a previous study on benefit incidence analysis by Demery *et al* (1995). Thus, the progress in providing basic services to the poor between 1992 and 1998 can be compared. Second, the objectives of the tracking survey report are to assess the efficiency of the public spending, and to assist the GOG in identifying the strategies and mechanisms to ensure easy access to public spending information at all government levels by civil societies, NGOs, and communities. This agenda is consistent with the overall decentralization policy identified by the GOG. Some international comparisons are also provided.

The remainder of this paper is organized as follows: Section 2 is devoted to the education sector, while section 3 is devoted to health sector. Finally, section 4 provides concluding remarks and recommendations to improve the effectiveness and efficiency of the systems that provide health and education services.

Section 2: The Education Sector

2.1 The Ghanaian Education System

Since 1987, the GOG has been reforming its education system. One of the main reforms was to change the pre-tertiary education system from 17 to 12 years, with six years of primary school, three years of junior secondary school (JSS), and three years of senior secondary school (SSS). The attendance of primary and junior secondary schools, which is also called basic education, is obligatory and free. However, in practice, basic education is not truly free because all schools collect obligatory contributions from students to supplement the government subsidies. Although basic education is mainly financed by the GOG, there are also a significant number of private schools, especially at the primary and JSS levels. Another area in which the private sector is active is vocational training, to which the GOG provides very few resources.

Currently, the five subjects taught in lower primary schools are English, Ghanaian Language and Culture, Mathematics, Environmental Studies, and Religious/Moral Education. In addition to the above subjects, the subjects in upper primary schools also include Integrated Science (Science and Agricultural Science), and Physical Education (including Music and Dance). The JSS curriculum consists of English, Ghanaian Language and Culture, Mathematics, Science, Agricultural Science, Pre-technical Skills (including technical drawing), Religious/Moral Education, Social Studies, and French (optional). In addition, Music, Life Skills, and Physical Education are also offered but they are not subject to external examination. At the primary school level, teachers are assigned by grade. For example, a first grade teacher teaches one class for all subjects. At the JSS level and above, teachers are specialized by subjects.

2.2 International Comparison of Gross Enrollment Ratios

Economically, Ghana has the second highest GNP per capita among the West African countries. Its pre-tertiary education indicators are on par with its economic development level, but the tertiary education indicator lags behind. Table 1 shows the average gross enrollment ratio (for both sexes) of primary, secondary, and tertiary education. In addition, it shows the ratio of female-to-male enrollments for pre-tertiary education, which we use to indicate the gender gap. The closer the female-to-male ratio to 100 (which indicates no gender gap) the smaller the gender gap.

Among West Africa countries, Ghana has the fourth highest primary and the third highest secondary enrollment ratio, and the second smallest gender gap. However, the enrollment of tertiary education in Ghana is one of the lowest according to UNESCO statistics. The relatively high enrollment ratios in pre-tertiary education yield a relatively high literacy ratio—at 70 percent, the second highest in West Africa. In short, years of effort in promoting basic education by the GOG have resulted in improving the general literacy of the population. The low enrollment in the tertiary education, however, is worrisome given today's economic development needs for technical professionals.

Table 1. An International Comparison for Education Indicators

Country	Gross Enrollment Ratios							Literacy rate population 15+	
	Primary			Secondary			Tertiary	1999	F/M ratio
	Year	GER	F/M ratio	Year	GER	F/M ratio	1996		
Benin	1996	78	58	1997	18	44	3.1	39	43
Burkina Faso	1995	40	65		—	—	0.9	23	40
Congo	1995	114	91	1995	53	72	8.3	80	84
Côte d'Ivoire	1996	71	74	1997	25	48	4.6	46	69
Gabon	1995	162	99	1995	56	89	7.9	—	—
Gambia	1995	77	77	1995	25	62	1.8	36	66
Ghana	1997	84	92	1997	43	85	1.4	70	78
Guinea	1997	54	60	1997	14	36	1.3	—	—
Guinea-Bissau		—	—		—	—		38	31
Mali	1997	49	68	1997	13	49	0.8	40	69
Mauritania	1996	79	89	1995	16	51	3.9	42	60
Niger	1997	29	63	1996	7	54	0.6	15	34
Nigeria							4	63	76
Senegal	1997	71	84	1997	16	62	3.2	36	58
Togo	1996	120	71	1996	27	36	3.6	56	54

Sources: Gross enrollment ratios are from the UNESCO database as of August 18, 2000. The literacy rate is from the World Bank SIMA database as of August 16, 2000. The Ghana 1997 gross enrollment ratios for primary and secondary are calculated from the CWIQ.

2.3 Public Expenditure Distribution System

The GOG finances and manages the education system through two managerial offices, the Ministry of Education (MOE) and the Ghana Education Services (GES). While the MOE primarily oversees budget allocation and education policies, the GES is an office with branches at both the regional and district levels to implement the budget and policies. In addition to MOE and GES, the Controller Accountant General (CAG) oversees the disbursement of all government employees' salaries through the banking system, including those working in the education sector. Thus, the GOG pays its employees directly, independent of any ministries or middle-level management offices.

There are three main channels that distribute recurrent expenditures from the MOE to the school facilities. The first channel is CAG, which receives its budget from the MOF and distributes payment vouchers through the banking system directly to the teachers in public schools. Because of this direct distribution system, teachers are, in general, paid on time and in full. However, this does not imply that teachers are paid adequately.

The second channel is the District GES, which receives its budget from the GES headquarters (GES-HQ), and distributes the budget to school facilities. The budgets that pass through the District GES are recurrent expenditures (excluding salaries), including, "Travel and Transport," "General Expenditures," "Maintenance/Repair/Renewal," and "Supplies and Stores." It is reported, pending verification, that district offices distribute resources proportionally to schools based on the district dues collected from schools. Thus, the schools

in poor areas may get fewer resources because they are likely to collect less dues than better-off areas.

The third channel is from the GES-HQ to school facilities. GES-HQ receives allocations to procure education materials, such as textbooks and supplies, and it distributes the materials either through district GES or directly to the school facilities. The resources distributed through this channel are difficult to fully account for, because at the school level the value of the materials is unknown. Schools report that the delivery schedules are often delayed and when textbooks arrived, they may not meet the schools' needs.

In addition to the above three channels, the District Assembly Common Fund (DA CF) distributes the budget for rehabilitation and development purposes in all public sectors, including the education sector. It receives budget allocations from the MOF and channels the funding to the District Assembly Office, which in turn distributes the budget among all public facilities, including schools. In this paper, we primarily focus on recurrent expenditures, thus the first three financing channels. It is worth noting that in addition to GES-HQ and District-GES, there are also Regional GES offices. We do not discuss Regional GES at great detail because their primary functions are to coordinate the district and the HQ offices and they do not handle any major financing activities.

2.4 Education Budget "Categories"

The education budget is divided into six categories in the budget sheets. They are: 140 for the MOE budget, 141 for the GES-HQ, 142 for the District GES, and 145 for tertiary education. Category 143 includes education for children with disabilities. Categories 143 and 144 (national archives), accounting for less than one percent of the total budget, will not be addressed in this study. When calculating schools' recurrent expenditures, administrative expenditures from GES are assigned as overhead. However, MOE management expenditures are not considered overhead, and often account for less than 0.1 percent of the total education budget. Total overhead in the Ghana education system in 1998 was approximately 8 percent.

Under each category, there are subcategories. Schools providing basic education obtain their recurrent expenditures through subcategories 02 and 03 under the category 142, which are earmarked for their use by the MOE, but disbursed through District GES.

2.5 Trends in GOG Real Education Expenditures

Between 1994 and 1998, the share of public education expenditures as a percent of GDP has remained roughly 4 percent, which is on par with most other West African countries (World Bank SIMA data base). Education expenditures as a percentage of total government expenditures decreased from 22.2 to 18.7 percent between 1990 and 1994, although the total spending level maintained a 10 percent annual growth rate due to the rapid expansion of total government expenditures.¹ The share of education expenditures relative to total government expenditures, however, further declined to 11.4 percent in 1999. The GOG is determined to reverse the trend, and increase the education sector's budget allocation to 22.5 percent by

¹ See Perran Penrose 1995: 9.

2002. In terms of spending level, total government education expenditures declined by a total of 16 percent between 1994 and 1998.

Table 2 presents the real expenditure comparisons by education level from 1990 to 1998. In order to calculate the per pupil subsidy, table 3 presents the total enrollment by education level in public schools. Dividing table 2 by table 3, table 4 presents the trend in real expenditure per pupil by educational level. Table 3 shows that real expenditures have declined for most education levels, with the exceptions of teacher training colleges, polytechnic, and vocational training. Overall education expenditures have declined by 4 percent annually between 1994 and 1998.

Table 2. Total Actual Expenditures 1990-98 (constant 1998 '000,000 cedis)

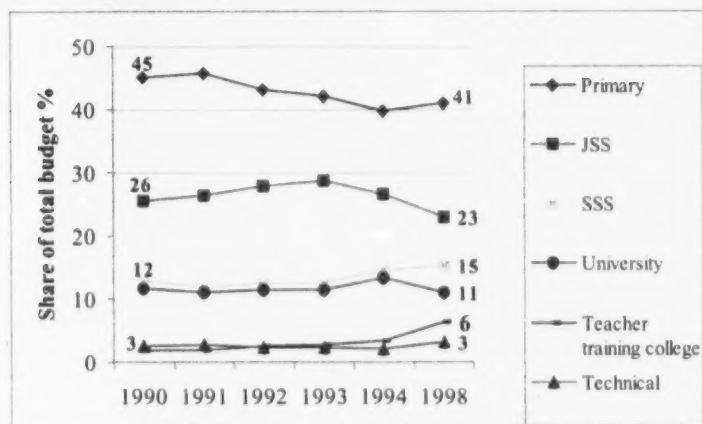
	1990	1991	1992	1993	1994	Average annual growth rate 1990- 94	1998	Average annual growth rate 1994- 98
Primary	194,672	216,298	283,955	304,914	277,099	9.2%	244,876	-3.0%
JSS	110,627	125,190	183,121	208,049	184,833	13.7%	136,763	-7.3%
Basic education	305,300	341,488	467,076	512,963	461,932	10.9%	381,639	-4.7%
SSS	56,094	56,694	82,310	91,463	101,466	16.0%	91,838	-2.5%
Polytechnic	2,874	3,553	3,253	3,861	3,167	2.5%	6,031	17.5%
University Subventions	50,665	52,085	75,734	83,608	93,908	16.7%	66,399	-8.3%
Vocation/ Technical	8,342	9,867	11,408	12,823	11,021	7.2%	12,676	3.6%
Teacher training college	8627	9313	16353	20073	24359	29.6%	37513	11.4%
Total *	431,902	473,000	656,134	724,791	695,853	12.7%	596,096	-3.8%

Sources: Perran Penrose, *Budgeting and Expenditures in the Education Sector*, December 1995; and MOE Actual Expenditure Sheet, 1998.

*This is the summation of all of the items listed in this table, which account for over 90 percent of total government education expenditures. Expenditures on special education, subventions, and MOE are not included here.

In addition to the decrease in the real total budget, there have been changes with regard to the shares of different levels of education within the total education budget. Figure 1 shows that the share of basic education declined between 1990 and 1998. The largest increases are SSS and the Teacher Training budget. The most noticeable change is that about 90 percent of the total budget has been devoted to primary, secondary, and tertiary education, and very little has been earmarked for technical and vocational schools. In order to acquire the technical skills necessary for today's economic development in a relatively short period, the allocation for technical and vocational schools is probably an area that needs to be re-evaluated. Ghana needs to explore options for alternative financing – private provision, user fees etc. - of vocational education.

Figure 1. Budget Share by Education Level



Source: MOE, "A Decade of Educational Reforms: Preparation for the Challenges of a New Millennium," National Education Forum background paper, November 1999.

Ironically, the distribution of public education expenditures does not correspond to the changes in enrollment. While SSS enrollment fell below the 1991 level, its share of budget had been increased. While the tertiary enrollment doubled between 1994 and 98, the share of its budget actually declined. Based on the MOE data, pre-tertiary total enrollment has been stagnant. Between 1994 and 1998, there was a less than one percent annual increase for basic education enrollment. Given a three percent population growth rate, this implies a decline in basic education enrollment.

Table 3. Total School Enrollment in Public Schools, 1990-98

	1990	1991	1992	1993	1994	Annual growth rate 1990-94	1998	Annual growth rate 1994-98
Primary enrollment	1,803,148	1,807,223	1,848,300	1,903,749	1,960,861	2.1%	2,027,026	0.8%
JSS enrollment	569,343	592,867	629,258	660,721	693,757	5.1%	695,468	0.1%
SSS	168,000	199,260	225,277	247,496	236,527	8.9%	188,908	-5.5%
Polytechnic	—	—	10,090	10,315	10,371	1.4%	9,942	-1.1%
University	—	—	11,857	12,439	13,122	11.1%	26,684	18%
Vocational/ Technical	—	—	—	—	—	—	14,624	—
Teacher training college	—	—	—	—	—	—	21,000	—

Source: MOE, "A Decade of Educational Reforms: Preparation for the Challenges of a New Millennium," National Education Forum background paper, November 1999.

It should come as no surprise that the unit subsidies for most education levels declined between 1994 and 1998. Table 4 shows that during this period, per pupil subsidies for

primary education has been reduced by a total of 15 percent and for JSS by a total of 26 percent. Despite the decrease in total expenditure on SSS, the unit subsidy has increased, solely due to the rapid decrease in the total SSS enrollment.

Table 4. Unit Subsidy by Education Level, 1990–98

	1990	1991	1992	1993	1994	Average annual growth rate 1990–94	1998	Average annual growth rate 1994–98
Primary	107,963	119,685	153,630	160,165	141,315	7.0%	120,805	-3.8%
JSS	194,307	211,160	291,010	314,882	266,423	8.2%	196,649	-7.3%
SSS	333,891	284,524	365,370	369,553	428,984	6.5%	486,153	3.2%
Polytechnic	—	—	322,359	374,309	305,351	-2.7%	606,611	19%
University	—	—	6,387,290	6,721,457	7,156,539	5.9%	2,488,363	-23%
Vocational/ Technical	—	—	—	—	—	—	866,809	—
Teacher training college	—	—	—	—	—	—	1,786,338	—

Source: Calculated from tables 2 and 3.

Given that teachers' salaries account for more than 90 percent of total education recurrent expenditures, the change in the pupil/teacher ratio (PTR) is the main factor driving the changes in unit subsidies. This implies a higher PTR corresponding to lower unit subsidies, and vice versa. Based on MOE data, between 1994 and 1998 the primary PTR increased from 31 to 36, and the JSS PTR increased from 18 to 20, while the SSS PTR decreased from 20 to 17. These changes correspond to the decrease in per unit subsidy in primary and JSS education and the increase in the SSS unit subsidy, respectively.²

Compared with other West African countries, the PTR for Ghana is relatively low, as shown in table 5. Most West African countries have a PTR greater than 40 for primary schools, and for secondary schools the PTRs are mostly in the upper 20s.³ However, Ghana's PTR are comparable with other more developed countries, such as South Korea and Swaziland. In spite of a favorable PTR, public school enrollment has been stagnant over the last decade.

The quality of public education is weak, as will be shown in the next section. The issue of linking public education inputs with the needs and outcomes of education must be resolved; such as planning the supply of teachers according to the needs and allocating more resources to improving the teaching environment and the supply of teaching materials. It has been suggested that financial incentives should be provided to teachers who are assigned to rural areas. In addition, a rotation system may be established to promote more qualified teachers to work in rural and remote areas.

² Source: MOE, "A Decade of Educational Reforms: Preparation for the Challenges of a New Millennium," National Education Forum background paper, November 1999.

³ Based on the World Bank SIMA data base as of August 2000.

Table 5. Pupil/teacher Ratio by Education Level, 1990–98

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Primary	29.1	27.8	30.2	30.9	30.0	32.6	32.7	35.9
JSS	18.5	17.8	19.1	18.2	18.5	20.4	18.3	20.0
SSS	21.7	22.5	22.5	20.0	17.6	17.6	17.0	NA

Source: MOE, "A Decade of Educational Reforms: Preparation for the Challenges of a New Millennium," National Education Forum background paper, November 1999.

2.6 Education Quality and Reasons for Not Attending Schools

The Ghana public education system practices automatic progression from primary school to JSS; as a result many pupils who are hardly literate and numerate upon the completion of primary school can still enter JSS (MOE 2000). The Criterion-referenced Tests (CRT) show very poor scores among public schools, especially among rural schools. Table 6 presents the CRT results from 1994 to 1997. The percentage of pupils who achieved "Reaching Mastery" level (PRM) within public schools in 1997 is extremely low, around 6 percent for English and 3 percent for Mathematics. The worrisome trend is that this low level of education quality has been persistent among public schools.

By contrast, the PRM in private schools is about 70 percent for English and 40 percent for mathematics, a steady improvement over the performances of previous years. Not only is the percentage of students reaching master level much higher among private than among public schools, but also the average scores of private schools are also much higher. In addition, there have been steady improvements in mean scores among private schools, and limited improvements in public schools⁴.

Table 6. Results of Criterion-referenced Tests, 1994–97

		English			Mathematics		
		1994	1996	1997	1994	1996	1997
Private	PRM	51.4	56.5	68.7	31.7	31	40.4
	Mean Score	58.8	61.0	67.4	47.3	47.0	51.7
Public	PRM	3.3	5.5	6.2	1.5	1.8	2.7
	Mean Score	31.0	33.0	33.9	27.7	28.8	29.9

Source: MOE, "A Decade of Educational Reforms: Preparation for the Challenges of a New Millennium," National Education Forum background paper, November 1999: 33.

In the 1998 CWIQ survey, children were asked why they were not attending school. In an attempt to investigate why children of school age do not complete the obligatory 9 years of education, we selected children age 6–16 who dropped out of school before completing JSS. There were 708 children who responded to the question "why [they were] not attending school." The most frequently chosen reason was that schools were useless and uninteresting (50 percent), the second was that school was too expensive (30 percent), and the third was that they were working (16 percent). Other reasons include: too far, illness, pregnancy, marriage, etc. However, very few children chose these reasons. These responses seem to

⁴ The high scores in private schools, among other factors, may also be due self selection bias. It is possible that better performing kids are enrolled in private schools which leads to higher CRT and PRM scores.

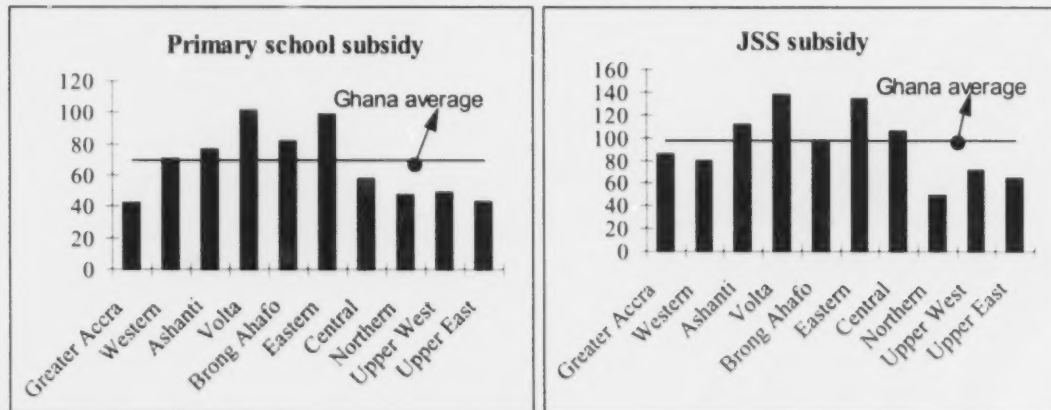
indicate that access to an educational facility is less of a problem, but improvements in curriculum and the teaching quality are imperative to further increasing enrollment.

In addition, we investigated why children age 16–18 do not continue to SSS following completion of JSS. Interestingly enough, three-fourths of the children did not continue their schooling because they or their parents believed that they had completed their education. It appears that there are a variety of reasons for the insufficient demand for higher education. Among 421 children who would like to have continued to SSS, the most frequently cited reasons for not attending are: too expensive (42 percent) and working (13 percent). Again, distance was not cited as a reason for not attending school.⁵

2.7 Regional Disparities in Public Subsidies and Enrollment Ratio, Basic Education

Because there are distinct economic variations between the different regions in Ghana, the regional distribution of public expenditure on education (or education subsidies) are explored in this section. Figure 2 presents annual public subsidies per school-age child by region and education level. It should be noted that we chose per school-age child to reflect what would have been available if all school-age children are enrolled in schools.⁶ The regions in figure 2 are arranged based on poverty incidence from lowest to highest. It shows that for both primary and JSS education, the poorest three or four regions receive the lowest subsidy per school-age child. Accra is an exception; but in Accra an active private education sector is fulfilling a large proportion of educational needs.

Figure 2. *Regional Subsidy per School-age Child ('000 1998 cedis)*



Source: MOE, "A Decade of Educational Reforms: Preparation for the Challenges of a New Millennium," National Education Forum background paper, November 1999.

This pattern is also persistent in the distribution of teachers and classrooms. Figure 3 shows school-age children per teacher and per classroom, respectively, which also accounts for

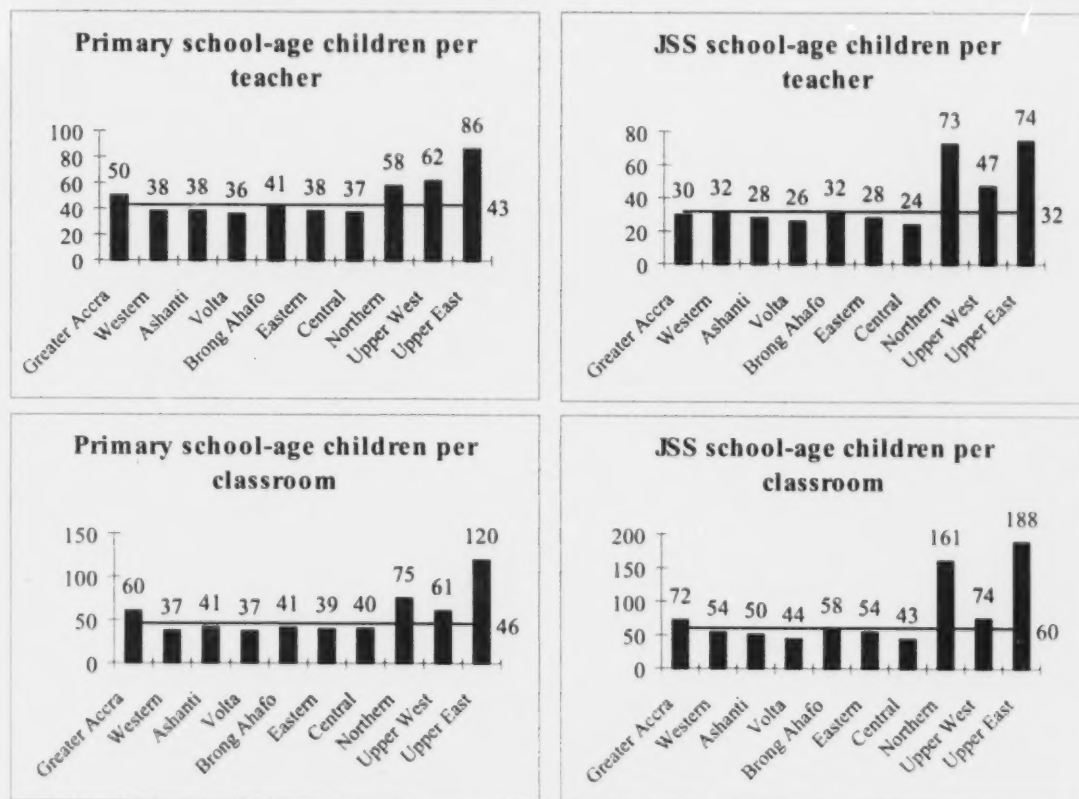
⁵ It is possible that cost concerns include distance considerations, depending on how respondents answered the question.

⁶ It is worth noting that this approach also enables us to better understand the cost implications of achieving Universal Primary Education (UPE) which Ghana wants to attain.

private resources. Thus, figure 3 shows all that is available to school-age children, including both public and private resources. In general, the three poorest regions, Northern, Upper West, and Upper East would have critical shortages for both classrooms and teachers at both the primary and JSS levels, if all school-age children were to enroll. Therefore, teacher and classroom issues need to be addressed in these regions if the universal enrollment ratio is to be achieved.

In the other regions, the ratio of school-age children per teacher is relatively reasonable, except there is an apparent shortage for primary school teachers in Accra. The number of school-age children per classroom is equitable for all regions, except Accra and the three poorest regions. But, it shows somewhat crowded conditions at the JSS level for most regions. In short, years of effort in promoting basic education have resulted in a teaching capacity with a reasonable coverage in seven out of 10 regions. The three poorest regions require a further strengthening of teaching capacity.

Figure 3. Ghana: Teaching Capacity by Region



Source: MOE, "A Decade of Educational Reforms: Preparation for the Challenges of a New Millennium," National Education Forum background paper, November 1999.

2.8 Gross Enrollment Ratio

Based on MOE data, the gross enrollment ratios in public primary schools have been declining.⁷ The primary school gross enrollment ratio dropped from 79 percent in the 1991/92 academic year to 73 percent in 1997/98. According to the MOE report, the JSS gross enrollment ratio has increased slightly, from 56 to 58 percent, including both private and public schools. As shown in table 7, these results are largely consistent with the household survey data for this period.

Table 7. Public School Enrollment Ratio

Quintile	Primary school			Secondary school		
	Male	Female	Total	Male	Female	Total
1992						
1	79	68	74	33	23	29
2	85	75	80	39	26	33
3	87	77	82	45	35	41
4	84	85	85	55	36	46
5	77	77	77	62	46	52
Accra	70	62	66	65	49	57
Other urban	89	81	85	55	41	48
Rural	82	76	79	38	27	33
Total	83	76	79	45	33	39
1997						
1	69	61	65	40	28	35
2	78	71	75	40	34	37
3	76	73	74	44	38	41
4	81	71	76	41	40	40
5	72	74	73	50	43	47
Accra	58	61	59	48	46	47
Other urban	74	73	73	53	40	46
Rural	77	70	74	39	33	36
Total	75	70	72	43	36	40

Source: 1992 figures are based on the calculation using the 1992 household survey data (GLSS3) and 1997 figures are based on CWIQ survey data. See note for table 8 for explanation of how enrollment ratios were calculated.

Table 7 shows that there has been a widespread decline in public primary school enrollment ratios across all income groups and localities. The decrease is larger for the poor than for the non-poor population. The public primary enrollment ratio in 1998 is about 90 percent of the 1992 level. The public secondary enrollment ratio did not change between 1992 and 1998. However, the secondary enrollment ratio of the poor increased significantly, although it began at a low level. In short, public primary school enrollment did not keep pace with the population growth rate, especially for the poor. The public secondary enrollment ratio is stagnant, with an increased enrollment ratio among the poor but decreased enrollment ratio among the rich.

⁷ Alternative data sources give different numbers for enrollments, but the regional disparities in the North still remain.

Table 8. Gross Enrollment Rates 1989-97, (public and private enrollments)

Table 6: Gross Enrollment Rates 1989-97, (public and private enrollments)													
Quintile	Accra			Other urban			Rural			Ghana			
Primary	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	
1989	1	77	53	63	92	82	87	69	56	63	73	60	67
	2	127	96	108	95	71	82	76	67	72	83	69	76
	3	90	92	91	93	69	80	90	75	83	90	74	82
	4	97	97	97	107	88	97	96	76	85	99	81	89
	5	110	83	96	83	79	81	93	75	84	93	77	85
	All	102	86	93	94	77	85	82	68	75	86	72	79
1992	1	96	76	84	92	76	84	79	63	72	83	67	75
	2	108	104	107	100	98	99	91	82	87	94	87	91
	3	123	79	98	105	97	101	90	81	85	95	85	90
	4	105	105	105	102	93	98	91	81	86	95	86	91
	5	96	108	103	122	95	108	98	95	97	105	97	101
	All	106	94	99	103	92	97	88	79	84	93	83	88
1997	1	88	82	86	87	76	81	70	62	66	74	66	70
	2	89	106	98	98	91	94	82	75	79	86	80	83
	3	95	92	94	92	106	98	86	76	81	88	82	85
	4	100	94	97	100	96	98	93	82	87	94	86	90
	5	98	94	96	94	102	98	94	90	92	95	92	94
	All	96	94	95	93	91	92	84	76	80	87	80	84
Secondary													
1989	1	50	21	30	43	26	35	35	19	28	37	20	29
	2	45	44	45	37	21	31	38	26	33	38	26	33
	3	53	23	39	46	31	38	42	33	38	43	32	38
	4	73	38	54	51	31	40	48	36	43	52	35	43
	5	67	42	55	46	27	34	51	30	40	54	32	42
	All	64	37	49	44	28	36	42	28	36	44	29	37
1992	1	61	25	44	34	18	26	30	21	26	33	20	27
	2	58	48	53	50	43	46	39	31	35	43	36	40
	3	50	23	39	46	35	40	42	30	36	44	31	38
	4	60	49	56	55	48	51	46	32	40	50	39	45
	5	82	51	64	57	43	49	47	29	39	54	37	45
	All	61	42	52	48	38	43	40	29	35	44	33	39
1997	1	44	57	51	57	40	49	36	22	30	42	30	36
	2	48	36	41	50	47	48	38	32	35	41	37	39
	3	59	50	54	59	44	51	41	37	39	46	40	43
	4	59	57	58	58	45	51	39	40	39	45	43	44
	5	65	63	64	73	49	59	51	42	47	57	48	52
	All	58	55	56	58	45	51	41	34	38	46	39	43

Source: GLSS2 and GLSS3 (calculated by Demery *et al*), and 1997 (calculated by authors). We used CWIQ instead of GLSS4 to calculate the enrollment ratio because GLSS4 did not distinguish between pre-school and primary school enrollment ratio, nor did it distinguish between private and public schools. The primary school gross enrollment ratio is calculated as total enrolled primary school students divided by children age 6-11. For the secondary school enrollment ratio, the range of school-age children used for GLSS2 is not clear, but we used children age 11-17 as the denominator for GLSS3 and GLSS4.

Table 8 presents the total gross enrollment ratio, including both private and public schools. At the national level there has been an overall decrease in the primary enrollment ratio among all income groups between 1992 and 1998. The decrease was, however, much less profound among the girls than among the boys. Total secondary school enrollment ratio increased from 39 to 43 percent (table 8). Compared with table 7, in which the public

secondary enrollment ratio dropped for the non-poor but increased for the poor, the increase in secondary school enrollment comes mainly from a rapid expansion of private secondary school enrollment among the rich, and an increase in the public enrollment among the poor.

Table 9 shows that private secondary school enrollment has increased from one percent of total enrollment to seven percent, with the largest increase found in Accra. The percentage of private enrollment among primary schools, although remaining the same at the national level, decreased in Accra but increased in rural areas. The overall message seems to be that once students entered primary school, they are more likely to remain in school than was determined in previous surveys. The higher quintiles of population began using public primary education more than previously, but probably switch their children to private secondary education. The poor have started using more private education at both the primary and secondary levels.

Table 9. The Proportion of Private Students among Total Enrolled Students

Quintile	Primary		Secondary	
	1992	1997	1992	1997
1	5	7	0	4
2	6	10	1	5
3	12	12	1	6
4	16	15	1	8
5	27	22	3	11
Accra	43	37	2	16
Other urban	20	20	3	9
Rural	5	8	0	4
Total	13	13	1	7

Source: CWIQ

2.9 Benefit Incidence Analysis

In previous sections we discussed the regional disparity in the distribution of public education expenditures. The basic conclusion was that the three poorest regions benefited the least from public spending, while they were probably the regions that needed public subsidies most. Given this regional disparity in public resource distribution, the purpose of this section is to evaluate how public education spending benefits the poor compared with the non-poor.

One difference in the methodology used here is that we take into consideration the different demographic compositions among households of different income levels. In general, the lower income households tend to have a larger number of young children than the higher income households. For example, based on 1998 household survey data, 23 percent of primary school-age children (5–11) are in the lowest quintile, while only 17 percent are in the highest quintile. To account for the demographic differences, this section will calculate benefit incidence based on the proportion of school-age children in each quintile group rather than on the proportion of quintile population, as is commonly done.

Based on the 1997 Core Welfare Indicator Questionnaire Survey, public education is predominant in most parts of Ghana, except in Accra.⁸ In Accra, public schools provide education for 67 percent of primary students, and for 80 and 90 percent of JSS and SSS students, respectively. In all other regions, public schools provide education for 88 percent of primary students, and for about 95 percent of JSS and SSS students, respectively. The private facilities tend to increasingly provide education services at lower levels.

The benefit incidence analysis for public expenditures in 1998 shows the share of subsidies captured by population groups of different income levels and locations, compared with 1989 and 1992 data (see table 10). To take into account demographic differences among different income groups, we created an index that is the ratio of the share of subsidy received by the children to the share of the children. If the index is greater than 100, it indicates that a particular group received more than its fair share of the subsidy in relation to the proportion of the children. This index is available for both 1992 and 1998 data.

Between 1992 and 1998, the benefit incidence of public primary school subsidies for the poor population (the bottom two quintiles) had either declined or stabilized, but for the richest quintile it has increased. Compared with other regions, Accra had greater gains proportionally in capturing the primary education subsidy, while other regions remained the same. In spite of somewhat unfavorable changes, the primary education subsidies, while not particularly pro-poor, do serve more than three-fourths of children equitably. Public primary education has the most difficulty reaching the poorest of the poor, and has resulted in a deterioration in recent years. Although not shown in table 10, a similar bias against the poorest children also exists in JSS.⁹

At the higher education level, the encouraging trend is that the share of secondary and tertiary education subsidies for the poorest of the poor (the lowest quintile) has been increasing, although they are still under-subsidized compared with other income groups. For SSS (not shown in the table 9), the lowest quintile received about 80 percent of their fair share. The largest inequality, not surprisingly, occurs at the tertiary level, where the poor population receives slightly more than 50 percent of what they should receive, while the richest captures 165 percent of what they should receive.

In conclusion, the education system is certainly not pro-poor, but up to the secondary level, it provides reasonably equal access to a majority of the population. Due to data limitations, it is not possible to evaluate the differences in the quality of education received by the poor and non-poor. However, we can say with great certainty that rural and poor children receive an

⁸Three details need to be mentioned here. First, we use the Core Welfare Indicator Questionnaire Survey instead of GLSS4 because in GLSS4 no question was asked as to whether a student was attending a private or a public school. Thus, we could not calculate public subsidies using GLSS 4 data. Second, we use 1997 enrollment rates from the CWIQ together with 1998 expenditure figures to derive benefit incidence for 1998. Third, we use the national average cost per student to calculate the total benefit, rather than using the estimated regional cost. This is because we believe that the regional variation in the cost largely reflects the variation in the utilization of school facilities, not the quality of education. For example, the high cost in other regions reflects the under-utilization of the school facilities, compared with Accra.

⁹ Table 10 shows a combined figure for both JSS and SSS to be consistent with the categories of the previous years.

inferior education compared with urban and non-poor children. This likely plays an important role in these children's decision to drop out of school. A slight deterioration at the primary level occurred between 1992 and 1998, but significant improvements have been made at the higher levels. Continued improvement is necessary at the secondary level, and careful monitoring should be applied to the benefit incidence of primary education.

2.10 Education Statistics

Ghana possesses a wealth of statistics about the education sector. Every year, GES conducts an education census that surveys all schools in Ghana, including both private and public schools. The survey collects detailed information on students, teachers, facilities, and teaching materials. However, it is not clear if the data are promptly entered into the computer system. It is our impression that the data have not been explored to the extent that the analysis of the data would provide MOE with timely inputs into the policy decision and budget allocation procedures. Particularly, it appears that data are stored somewhere in the computer system that is not readily retrievable or sometimes discarded after one or two years.

While the survey capacity exists, overall administrative capacity needs to be strengthened. Additionally, the technical capacity needs to be expanded. Finally, strengthening the analytical capacity is expected to improve efficient resource allocation and target the poor regions.

Table 10. Allocation of Public Spending Subsidies 1989, 1992, and 1998

Percent of subsidies captured Column share (%)				Share of subsidy to Share of children	
	1989	1992	1998	1992	1998
Primary education					
Quintile				Quintile	
1	21.2	21.8	20.4	1	94
2	22.1	23.6	20.8	2	104
3	22.2	21.7	20.9	3	105
4	20.3	18.8	20.9	4	104
5	14.3	14.0	17.0	5	92
total	100.0	100.0	100.0		
of which:				of which:	
Accra	6.3	5.3	7.4	Accra	74
Other urban	23.1	24.6	17.8	Other urban	102
Rural	70.6	70.1	74.8	Rural	102
Secondary education					
Quintile				Quintile	
1	16.8	14.9	18.8	1	67
2	18.0	21.8	18.8	2	103
3	21.8	21.1	19.0	3	97
4	23.4	23.5	20.9	4	121
5	19.9	18.6	22.5	5	121
total	100.0	100.0	100.0	Total	
of which:				of which:	
Accra	11.1	12.0	14.9	Accra	135
Other urban	23.3	30.1	25.2	Other urban	110
Rural	65.6	57.8	59.9	Rural	91
Tertiary education					
Quintile				Quintile	
1	7.7	6.0	12.5	1	39
2	3.8	9.5	10.9	2	56
3	19.2	19.0	21.1	3	100
4	19.2	20.2	19.2	4	91
5	50.0	45.2	36.4	5	170
total	100.0	100.0		total	
of which:				of which:	
Accra	42.3	27.4	41.8	Accra	258
Other urban	34.6	47.6	36.5	Other urban	178
Rural	23.1	25.0	21.6	Rural	40

Source: 1989, 1992 (calculated by Demery *et al*) and 1998 (calculated by authors). Unit subsidies in 1998 are as shown in table 3.

2.11 Summary of Main Findings

This chapter evaluated public education provision from several aspects: (a) the pattern of public resource allocation; (b) regional disparities in education resources and enrollment ratios; and (c) benefit incidence analysis. The main findings include the following:

- Among West African countries, the quantity of education output (enrollment ratio) of Ghana is on par with its economic development level, and the gender gap is low.
- Total public spending in the education sector declined significantly – at an annual rate of 5 percent per annum – between 1994 and 1998.
- Less than 5 percent of total public education expenditures have been devoted to vocational training.
- Teaching capacity (teachers and classrooms), including both private and public resources, is distributed unevenly, with the greatest shortage found in the three poorest regions but relatively good level of capacities for other regions.
- Between 1989 and 1992, there was a broad-based increase in the primary school enrollment ratio, especially among girls. Between 1992 and 1998, the enrollment ratio declined slightly, coinciding with the public education spending cut during that period. At the national level, the primary gross enrollment ratio reached 84 percent in 1998. However, regional disparity is great, with the three poorest regions reporting a 50 percent enrollment ratio and a greater gender gap.
- Between 1989 and 1998, the secondary gross enrollment ratio has generally improved, from 37 to 43 percent. The largest increase occurred among girls living in urban areas and the boys living in urban areas other than Accra. The regional gap is much narrower at the secondary level, with a 32 percent enrollment ratio reported among the three poorest regions.
- Up to the secondary level, a majority of children benefit from the provision of a public education more or less equally. It is the children of the poorest households who do not receive the full benefits.
- Test scores imply that the quality of public education is lower than that of private schools. There has been very little improvement in education quality among public schools, but continued improvements have been observed in private schools.

Based on the above findings, the following recommendations are made. The three poorest regions, Northern, Upper West, and Upper East, are in urgent need of financial resources in order to expand their teaching capacity, in terms of both physical facilities and the number of teachers. It is apparent that trained teachers do not want to be assigned to the poorest

regions. Thus, extra incentives need to be provided for those who are willing to relocate. In addition, a rotation system could be designed with a specific length of assignment for qualified teachers to work in remote rural areas. The school headmaster, however, should hold the position for a relatively long period to encourage local accountability and continuation in school administration.

In all but the three poorest regions, the existing teaching facilities appear to be sufficient. Thus, improving the teaching quality within the existing capacity should be the first priority. Improving quality will most likely have a significant, positive impact on the enrollment ratio, because "school is useless/uninteresting" was the most frequently cited reason for school-age children not attending school.

While a comprehensive plan to improve the quality of education is beyond the scope of this paper, a few points can be made, based either on the findings of this study or discussions in other literature. First, the salary component of the education recurrent expenditure is more than 90 percent, which leaves few resources to provide teaching materials. Based on our tracking survey, there are resources that are unaccounted for in the education financial system. Therefore, it is possible that the teachers' salaries and the non-salary recurrent expenditure can be increased by simply making the financial system more efficient and effective.

It has been reported that the state-procured materials frequently arrive late or do not match the schools' needs. The delay in the distribution of school supplies needs to be improved if teaching quality is to improve in Ghanaian schools. In addition, decentralized public services, especially social services have been suggested for some time in Ghana. It may be the right time to take appropriate actions on this front.

Questions have arisen about whether the automatic progression from primary school to JSS discourages rigorous academic training. While basic education is obligatory and every child should have a right to attend JSS, it is not necessarily in the best interests of the children that they know whether or not they perform well, they will end up in JSS. It is imperative to introduce some incentive structure that, on the one hand encourages academic performance, but on the other hand, is not exclusive. Incentives should be also provided to teachers to achieve a high quality of training.

Parents' and students' commitment to education and to the quality of education is another factor of paramount importance. It is apparent that in recent years, once students enter a school, they tend to stay in school. Through parents' involvement, we see an increased awareness for the value of education. Involving parents in improving the quality of education can prove effective.

It is apparent that factors beyond the education sector also greatly affect enrollment. These may be numerous and may be imbedded in the economy and cultural beliefs. Some apparent reasons include parents' unemployment or low incomes, lack of returns in the labor market for people with basic education, and domestic demands placed on girls.

Although tertiary education is skewed toward the urban and better-off populations, the trend of attending higher education among the lower income groups is encouraging. Given the very low level of enrollment in tertiary education compared with other West African countries, it is important to address the needs of higher education, given its importance in today's economic development. Another issue is vocational and technical training, which has been neglected in recent years; the resources allocated to these institutions are extremely low, about 3 percent of the total education budget since 1989. Given that fiscal constraints will not allow a greater allocation by the government, alternative financing options need to be explored for vocational education.

Section 3: The Health Sector

3.1 Introduction

In the late 1970s, the GOG adopted the primary health care strategy as the vehicle for achieving Health for All by the year 2000. The economic crisis in the early 1980s drastically reduced resources available to the health sector, resulting in a deterioration in the population's health status. Ghana has re-embarked on a Medium-Term Health Strategy (MTHS) that aims to achieve Health for All, by improving service quality and efficiency. As the MOH (2000) states "Since 1995, health policy has been based on Ghana's MTHS which seeks to promote greater equity in access to health and outcomes. In pursuit of this objective, Ghana's MTHS aims at strengthening district health services, promoting community involvement in the delivery of health services, redirecting health resources to the needy or deprived areas."

Although it is difficult to discern the factors that have contributed to the improvement in some health indicators, there is no doubt that the health reform has, to some extent, contributed to the improvements. Based on World Bank data, between 1990 and 1998, infant mortality decreased by a total of 16 percent, infant mortality under five by 24 percent, and life expectancy at birth increased by 5 percent in Ghana.

HIV/AIDS prevalence, however, has been on the rise in Ghana. Among antenatal clinic women tested for HIV, 3 percent were positive in 1998, compared with 1 percent in 1990. As of 1999, although HIV/AIDS prevalence among adults is relatively low, a national average of 3.6 percent, it has reached well above the epidemic level in some urban areas such as Kumasi and Agonmanya and among certain social groups such as STD patients and prostitutes. According to UNAIDS estimates, 33,000 Ghanaians died from AIDS in 1999, leaving 119,000 children under age 15 orphaned. These statistics highlight that in addition to existing challenges in increasing access to preventive and curative health services, additional resources are required to fight the rapidly increasing HIV/AIDS epidemic and its consequences.

In 1998 the budget allocation to the Ministry of Health (MOH) was maintained at the previous level in cedi terms, with a significant contribution by the non-wage recurrent budget from structural adjustment money. The question then became: has the reform improved the sector's efficiency to an extent that the system can be self-sustaining with substantially improved services reaching all segments of population, or has the system moved in this direction. This chapter takes an in-depth look into this question, mostly seeking answers by comparing data at the disaggregated levels, such as among regions, facilities of different levels, and the population of different income groups.

The rest of this section is organized as follows. First, we briefly describe the health system. Second, we make an international comparison on the efficiency of the health system. The third part of the analysis focuses on the distribution of health facilities and health personnel, as well as the population's access to health facilities and the utilization of facilities among the 10 regions. The fourth part of the analysis looks at the budget allocation among the different levels of health facilities and their financial viability. The third and fourth parts of

these analyses are essentially health care inputs. The fifth part investigates the efficiency of the health system by comparing the health inputs and outputs. The sixth part evaluates the benefit incidence of health subsidies to determine if the public health subsidy has reached all segments of the population as intended. Finally, based on our analysis we provide recommendations on improving future health system performance, and summarize the findings that are meant to stimulate further policy discussions.

3.2 The Health Care System in Ghana

Similar to the education sector, the health sector is managed by two offices, the MOH and Ghana Health Services (GHS).¹⁰ MOH is the office responsible for budget allocation and policy definition, while GHS, with branch offices at both the regional and district levels, is mainly responsible for the implementation of the budget and policies. In addition, non-government entities are also very active in the health sector.

Health facilities in Ghana consist of four levels in the urban areas and five levels in the rural areas. The health post or outreach sites are the first-level health care providers in rural areas. The MOH also provides mobile health services, including immunization and family planning, to rural residents. The higher-level health providers, in ascending order, are health centers or clinics, district hospitals, regional hospitals, and tertiary hospitals. Ghana also has a network of maternal homes, although they are mainly privately owned, in addition to many private clinics that provide health services. GOG pays a substantial share of the private and missionary health expenses as subsidies.

There are four main financial sources for public health services: the GOG; financial credits; Internally Generated Fund (IGF); and Donors-pooled Health Fund. In addition, donor-earmarked funds and donor-managed funds (projects) also contribute to total health expenditures. The IGF are the fees collected from the patients who use the services and buy drugs provided by the health facilities. The GOG provides free public health services for immunization and certain communicable diseases. It also provides free health services for certain vulnerable groups such as children under 5, people over 70, and pregnant women. While salaries are distributed by the Controller Accountant General (CAG) directly to the public health personnel through the banking system, other recurrent expenditures are mostly distributed by the District Health Offices to health facilities. In addition to public health services, Ghana also has private and missionary health facilities, which are mainly hospitals of limited scale and health clinics. In some cases, the GOG provides subsidies for non-government-run facilities.

3.3 An International Comparison on the Efficiency of the Health Care System

The World Health Organization recently published the *World Health Report 2000*. To assess the efficiency performance of health systems among the member countries, an index was calculated for each country, indicating how efficiently health systems translate expenditure into health, measured by disability-adjusted life expectancy (DALE). An index of one indicates the most efficient system and zero indicates the least efficient system.

¹⁰ Ghana Health Service is not fully operational and does not have all staff in place to function similar to GES.

To compare the health system's efficiency with other West African countries, table 11 reports performance and other selected health-related indicators of 16 out of 19 West African countries, arranged from the highest to the lowest GNP per capita measured by Purchasing Power Parity (PPP) dollars. It shows that Ghana is ranked as having the second highest GNP per capita in PPP dollars. However, its public health expenditure per capita is quite low, only 21 PPP dollars—ninth highest among the 16 countries. This means that proportionally, Ghana spends less than average on health expenditures given its GNP level. Its total health expenditure per capita, including the private spending, is ranked as the eighth highest country, indicating a slightly higher than average contribution from private sources to health care.

In terms of efficiency of translating expenditures into the health status of the population as measured by DALE, Ghana's efficiency index is only 0.479, less than 50 percent efficiency compared with the most efficient health system.¹¹ Among West African countries, the level of Ghana's health system's efficiency is only ranked as the seventh highest.

Table 11. The Efficiency Level of Health Care Systems among West African Countries

	PPP GNP per capita (1997)*	PPP public expenditure per capita (1997)	PPP total health expenditure per capita (1997)**	Health Performance Index (1997)	Child Mortality under 5 (per 1000)		Life expectancy at birth	
					Male (1999)	Female (1999)	Male (1999)	Female (1999)
Gabon	5,559	130	196	0.559	94	85	54.6	57.5
Ghana	1,740	21	45	0.479	118	109	54.2	55.6
Guinea	1,734	30	52	0.469	217	193	46.2	48.9
Mauritania	1,511	22	73	0.517	189	168	49.5	53.0
Côte d'Ivoire	1,460	22	57	0.598	145	124	47.2	48.3
Gambia	1,431	24	52	0.687	103	93	56.0	58.9
Togo	1,431	15	34	0.472	142	122	48.9	50.8
Senegal	1,276	40	71	0.601	134	126	53.5	56.2
Benin	860	18	39	0.596	157	148	51.3	53.3
Burkina Faso	853	12	37	0.463	182	171	44.1	45.7
Guinea-Bissau	842	41	54	0.481	207	196	45.0	47.0
Congo	798	37	101	0.433	112	102	53.6	55.2
Nigeria	767	10	35	0.353	173	170	46.8	48.2
Niger	711	13	27	0.323	331	339	37.2	40.6
Mali	678	15	34	0.410	240	229	41.3	44.0
Sierra Leone	469	3	31	0.230	326	298	33.2	35.4

*PPP GNP per capita is from *World Development Indicators*, World Bank, 2000. Other indicators are from *World Health Report 2000*, WHO. The child mortality rate and life expectancy estimates are somewhat different than the GOG estimates, which are 107.6 and 57+, respectively, for 1998 (*The Health Sector in Ghana, Facts and Figures 1999*).

**Includes private health spending.

¹¹ WHO has also reported the uncertainty intervals for the efficiency index. For Ghana, the interval is 0.457–0.50. The highest possible efficiency level is still quite low at 0.50. It should be noted that these numbers are still not widely used as their methodology is being questioned.

In short, among Western African countries, Ghana lags behind in terms of both public health spending and the efficiency level of its health system. When there is low budget spending, the only recommendation is for the GOG to increase its health expenditure allocation. However, unless the efficiency is improved, more spending will not improve the health outcomes. The rest of this chapter, thus, is devoted to analyzing the efficiency of public health spending.

3.4 Public and Private Health Facilities by Region

In Ghana, there are two teaching hospitals—one in Accra and another in Ashanti—and one regional hospital for each region except Ashanti. In this section, we focus on the health facilities at or below the district level. The regions in table 12 are arranged from the most affluent to the poorest in terms of their poverty levels. What immediately draws attention is that two of the three affluent regions, Western and Ashanti, also have the highest number of government-run hospitals; and two of three poorest regions, Upper West and Upper East, also have the lowest number of government-run hospitals. Private and missionary hospitals also tend to operate in more affluent regions, such as in Ashanti and Brong Ahafo. It is interesting to note that all six non-government-run hospitals in Accra are, in some way, subsidized by public expenditures, while none of the non-government-run hospitals in the two poorest regions receive subsidies.

Table 12. Regional Distributions of Health Facilities by Ownership

	Hospitals by Ownership					Total number of facilities	% of facilities financed by the government*
	<i>Mission</i>	<i>Private</i>	<i>Government</i>	<i>Quasi-Government</i>	<i>Total government run*</i>		
<i>Greater Accra</i>	0	0	5	6	11	11	100.0
<i>Western</i>	4	0	9	6	15	19	78.9
<i>Ashanti</i>	13	35	13	3	16	64	25.0
<i>Volta</i>	7	7	11	1	12	26	46.2
<i>Brong Ahafo</i>	10	7	5	1	6	23	26.1
<i>Eastern</i>	5	7	10	3	13	25	52.0
<i>Central</i>	4	2	7	1	8	14	57.1
<i>Northern</i>	3	1	7	2	9	13	69.2
<i>Upper West</i>	2		2	0	2	4	50.0
<i>Upper East</i>	1	1	3	0	3	5	60.0
Total	49	60	72	23	95	204	46.6

	Health Centers/Clinics by Ownership					Total number of facilities	% of facilities financed by the government*
	<i>Mission</i>	<i>Private</i>	<i>Government</i>	<i>Quasi-Government</i>	<i>Total government run*</i>		
<i>Greater Accra</i>	0	213	32	4	36	249	14.5
<i>Western</i>	15	45	92	28	120	180	66.7
<i>Ashanti</i>	35	87	102	2	104	226	46.0
<i>Volta</i>	14	49	386	1	387	450	86.0
<i>Brong Ahafo</i>	8	55	106	10	116	179	64.8
<i>Eastern</i>	9	53	62	4	66	128	51.6
<i>Central</i>	8	49	45	2	47	104	45.2
<i>Northern</i>	20	11	85	0	85	116	73.3
<i>Upper West</i>	16	2	33	0	33	51	64.7
<i>Upper East</i>	8	10	56	1	57	75	76.0
Total	133	574	999	52	1051	1758	59.8

Source: MOH, *The Health Sector in Ghana, Facts and Figures 1999*.

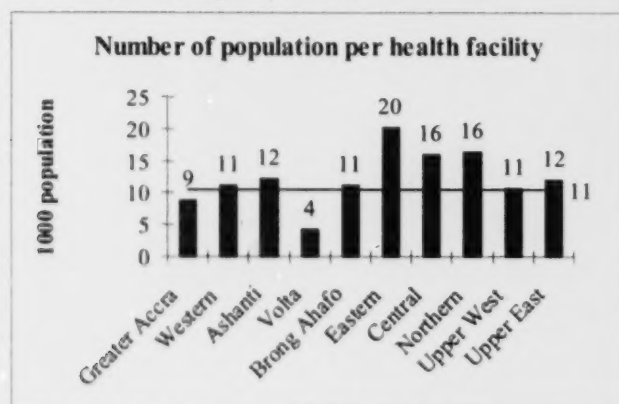
*Total government-run includes both government and semi-government.

The distribution of health centers and clinics is similar to that of the hospital distributions with the exception of Accra. In Accra, most health centers and clinics are privately run, and only 36 out of 249 are subsidized by the government. In other regions, however, the government finances an extensive health clinic network in the four most affluent regions (Western, Ashanti, Brong Ahafo, and Volta). This is especially true for Volta, which has 387 government-financed health centers and clinics. The private health facilities also tend to be concentrated in more affluent areas. For example, Ashanti has more than 122 private health clinics, while there are only 31 in the Northern Region, a region with the area twice that of Ashanti and a slightly larger population.

The lack of investments from both the public and private sectors results in a less than favorable situation for the poor regions where the share of the health facilities is not

sufficient for the size of the population. Figure 4 presents the number of population per health facility by region. The line indicates the average population per health facility at the national level. The first five better-off regions are, more or less, at or below the national average level. It is not clear why Volta region has the lowest level compared with the national average. In fact, while 24 percent of all health facilities are in Volta, its population accounts for only about 7 percent of the total population. The three poorer regions, Eastern, Central, and Northern are much worse off than the national average. The two poorest regions, the Upper West and Upper East, however, have facilities at the national average level. It should be noted that this is just a simple count of the number of all health facilities—small health posts and big hospitals. In reality, the hospitals and health clinics in Accra are most likely larger and better equipped than those in, for example, Northern region. The condition, therefore, is probably even less favorable for the poorer regions.

Figure 4. The Regional Disparity in Health Facilities



Source: MOH, *The Health Sector in Ghana, Facts and Figures 1999*.

In conclusion, the distribution of health facilities favors more affluent regions because of higher investments from both the public and private sectors. The health facility network is quite extensive in better-off areas. However, the shortage of infrastructure seems apparent in three of five poor regions. Subsidizing non-government-run facilities might be a way to stimulate private health provision in poorer regions, rather than in large urban areas. Most importantly, any new health investments must be targeted to the neediest regions and better incentives in kind and cash are necessary to attract health staff to deprived areas.

3.5 Regional Variation in Access to Health Facilities and Health Personnel

Distribution of health facilities varies considerably among the 10 regions, as shown in figure 4. Table 13 shows that there is, in general, easy access to health facilities for urban residents. Over 75 percent of the urban population are relatively close to the nearest health facilities (less than 30 minutes), except in the Northern and Upper East regions. Volta, with an exceptionally high number of health facilities, does not have a high access rate, possibly because of its complex terrain.

In rural areas, given the low population density, it is not surprising that the access rate is lower than that of urban areas. In most regions, more than 30 percent of the rural population is close to a health facility, except in the three poorest regions: Northern, Upper West, and Upper East regions. Only about 15 percent of the rural population in these regions live less than 30 minutes away from a health facility. It should be noted, however, that questions about the outreach sites were not asked in the Core Welfare Indicator Questionnaire (CWIQ), from which the data are used to calculate the access. Thus, the actual access to some kind of health workers may be higher in rural areas than shown in table 13. This indicates that future investments for the construction of new health facilities clearly need to be targeted to the neediest regions.

Table 13. Distribution of and Access to Health Facilities by Region

	District and other hospitals	Sub-district health centers/clinics	Total # of health facilities	% of population with access to health services*		Poverty incidence
				Urban	Rural	
Greater Accra	22	249	271	94	63	7.3
Western	19	180	199	85	31	24.9
Ashanti	64	226	290	75	48	35.7
Volta	26	450	476	75	51	37.4
Brong Ahafo	23	179	202	76	38	38.8
Eastern	25	128	153	76	45	48.4
Central	14	104	118	75	42	49.7
Northern	13	116	129	50	16	69.1
Upper West	4	51	55	83	14	88.3
Upper East	5	75	80	22	16	89.3
Ghana	215	1758	1973	80	37	42.1

Sources: CWIQ survey and GLSS4.

* Defined as people who take 30 minutes or less to reach the nearest health facility.

Another indicator to measure the availability of public health care is to measure population per physician. In general, a high level of population per physician indicates a shortage of health professionals. The distribution of physicians among the 10 regions is quite skewed, as shown in table 14. There are only two publicly financed teaching hospitals in Ghana; in Accra, the national capital, and in Kumasi, the capital of Ashanti region. In 1998, of 1,204 publicly funded physicians in Ghana, 503 (more than 40 percent) worked in these two teaching hospitals. It should be noted that when we measured the regional variations we did not include the physicians in the two teaching hospitals, because they serve the patients referred to them by lower level health facilities from all over the country.

Table 14 shows that population per physician is, to a large extent, associated with the economic conditions of the region. Poorer regions have a higher population per physician, especially in the Northern region where each physician serves, on average, 72,000 residents—four times higher than Accra. The distribution of nurses (including health technical personnel) is somewhat less skewed than that of the physicians. Again, the Northern region has the highest level of population per nurse—three times higher than Accra.

Table 14. Distribution of Health Professionals

	<i>Population per doctor</i>	<i>Population per doctor index (Accra=1)</i>	<i>Population per nurse</i>	<i>Population per nurse index (Accra=1)</i>
Greater Accra	14,482	1.0	734	1.0
Western	25,819	1.8	1,195	1.6
Ashanti	31,240	2.2	1,987	2.7
Volta	18,614	1.3	700	1.0
Brong Ahafo	26,022	1.8	1,837	2.5
Eastern	38,146	2.6	1,269	1.7
Central	32,040	2.2	1,085	1.5
Northern	71,912	5.0	2,924	4.0
Upper West	43,221	3.0	1,507	2.1
Upper East	57,591	4.0	1,868	2.5

Source: MOH, *The Health Sector in Ghana, Facts and Figures 1999* and authors' calculations.

3.6 Distribution of Public Health Expenditure among Different Levels of Health Facilities

In Ghana there are four types of financial arrangements for health facilities: the government-financed and -managed facilities; quasi-government-financed—the government subsidizes these facilities but does not necessarily run them; facilities run by missionaries; and facilities run by private citizens. Table 15 shows that the MOH finances all hospitals at the regional level or higher, including two teaching, three psychiatric, and nine regional hospitals. The MOH also runs 68 percent of district level hospitals (62 out of 91), runs or subsidizes 27 percent of other hospitals (33 out of 124), 88 percent of health centers (450 out of 557), and 39 percent of health clinics (424 out of 1,085). There are also 320 maternity homes, but only seven are financed by the MOH. (*The Health Sector in Ghana, Facts and Figures, 1999*).

Table 15. Ghana: Health Facilities by Type and Ownership, 1998

	<i>Number of Facilities Owned by</i>						
	<i>GOG</i>	<i>As percent of total</i>	<i>Quasi- Government</i>	<i>As percent of total</i>	<i>Mission</i>	<i>Private</i>	<i>Total</i>
Teaching hospital	2	100.0					2
Psychiatric hospital	3						3
Regional hospital	9	100.0					9
District hospital	62	68.1			29		91
Other Hospitals	10	8.1	23	18.5	20	71	124
Health Centers	488	87.6	2	0.4	42	25	557
Clinics	374	34.5	50	4.6	90	571	1085
Maternity Homes	7	2.2				313	320

Sources: MOH, *The Health Sector in Ghana: Facts and Figures 1999*.

In terms of financial support to different types of health facilities, the government spends 75 percent of its budget on hospitals, including tertiary, regional-, and district-level hospitals, and 25 percent on sub-district-level health centers and clinics (calculated from MOH

Financial Report, December 31, 1998:19). This expenditure pattern apparently favors urban residents because hospitals are primarily located in urban areas.

In short, the government finances all higher-level health care (regional-level hospitals or higher) and a majority of health centers. At the lower level (clinic level), the private sector and the missions run 60 percent of the facilities. The private sector and missions also run more than 70 percent of other hospitals, mostly at the district level. These arrangements probably occurred largely by default. The government can afford to finance large health facilities while the private entities can probably only afford to finance smaller-scale health facilities. However, it is possible for the government to provide more subsidies to lower-level private health facilities in remote areas, thus improving the availability of health care.

3.7 Health Expenditure Distribution

Based on the above analysis, we have demonstrated that the distribution of health facilities and personnel favor more affluent regions and urban areas. This section will focus on the expenditure categories among the different levels of health facilities and administrations. Unfortunately, such information is not currently available at the region level; therefore regional variation will not be examined.

Table 16 shows that 70 percent of health expenditures are spent on recurrent expenditures and 30 percent on capital investment. Among recurrent expenditures, wages account for 36 percent.¹² The next two largest components are "General Expenditures" and "Supplies and Stores," which include non-medical expenditures for operating the hospitals, such as electricity and water charges, and medical-related expenditures, such as the purchase of chemicals and consumables, and health education. We do not have adequate knowledge to judge if the expenditure distribution among different categories are efficient or not, but it appears that the allocation of 50 percent of recurrent expenditures in two categories, namely "General Expenditure" and "Supplies and Stores" requires complete transparency.

¹² Recurrent expenditure was 56 percent in 1997 and 84 percent in 1999 of total health expenditure. Wages as a share of recurrent expenditure decreased from 42 percent in 1997 to 41 percent in 1999 (Foster 2000).

Table 16. Percentage of Total Health Expenditure by Facility and Item

Percentage of	Total Admini- stration	Teaching/ psychiatric hospitals	Regional hospitals	Training insti- tutions	District hospitals	Poly- clinics/ health centres	Subven- -tions	Weighted Total
Recurrent expenditure:								70.0
Personal Emoluments	3.3	22.5	12.8	4.3	22.0	25.2	0.0	35.5
Traveling	1.2	6.5	7.6	7.2	17.0	20.5	0.0	4.3
General	3.9	10.4	28.9	2.0	20.9	12.4	0.0	22.1
Maintenance	0.7	21.4	11.4	6.7	23.1	15.2	0.0	4.7
Supplies and stores	4.8	16.2	9.4	2.1	21.3	26.4	0.0	27.7
Subventions	0.1	0.0	0.0	0.1	0.2	0.0	97.4	5.7
Weighted Total	20.1	16.0	14.4	3.2	20.1	20.5	5.6	100
Proportion of out-patient visits ¹³		30	13		8	49		
Capital investment:								30.0
Construction	2.9	4.7	61.6	2.6	21.9	6.2	0.0	87.1
Equipment	23.8	53.0	0.5	1.0	11.8	9.8	0.0	12.0
Other	99.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Weighted Total	6.3	10.4	53.8	2.4	20.5	6.6	0.0	100

Source: compiled from MOH Financial Report, December 31, 1998: Exhibit F.

In addition to expenditure allocation among different categories, table 16 also shows how expenditures are distributed among different agencies and facilities.¹⁴ Total administrative expenditures, including the MOH headquarters, and regional and district administration offices, account for 20 percent of the total recurrent expenditures, with 10 percent spent by headquarters and 5 percent each by regional and district offices, respectively. According to Foster's (2000) report, total administrative expenditures have been decreasing over the years, and HQ-managed funds declined from 40 percent in 1997 to 13 percent in 1999 may be reflective of change in donor policy funding priorities. Non-salary recurrent expenditures have been decreasing at the tertiary level from 18 percent in 1997 to 12.6 percent in 1999, while at the regional level these expenditures increased from 15 to 29 percent during the same period. This may also reflect changes in donor health policy that directed external funds to lower level service delivery.

We also calculated the proportion of outpatient visits equivalent (one in-patient day was counted as three outpatient visits) by facility level as used in MOH (1999). Interestingly,

¹³ It should be noted that this result is consistent with the low bed occupancies in the district hospitals, but is not consistent with the cost of per outpatient visit estimated below, in which one outpatient visit costs more in tertiary hospitals than in regional or district hospitals. This may be due to either the inconsistency of the different data sources or the methodologies of calculation. Nevertheless, we feel this is an important point to address, and the inconsistency should be further investigated. We used outpatient visits and in-patient days to calculate total outpatient visits from regional health reports.

¹⁴ Foster (2000) gives a different categorization of health expenditures that is not comparable to table 16.

there are great variations in terms of input (the share of budget) and output (the share of patients treated). District-level hospitals received about 20 percent of the total recurrent budget, but only provided services for 8 percent of the patients. In contrast, clinics received about 20 percent of budget, and provided services for almost 50 percent of patients. Tertiary hospitals are also quite efficient, receiving 16 percent of the budget and providing services for 30 percent of patients, largely due to the high number of in-patients. Ironically, the district and regional hospitals received almost 75 percent of the total capital investment in 1998. Thus, it appears that the facilities that serve fewer people receive the highest capital investment. Based on the current pattern, it seems that capital investments are unlikely to yield significant improvements in health service provisions.

Capital expenditures, which account for about 30 percent of total health expenditures, are primarily spent by higher-level health facilities. For example, over 50 percent of the equipment purchased were allocated to the four tertiary hospitals; and the nine regional hospitals account for 62 percent of total construction spending. Of the total capital investment, the sub-district clinics and health centers receive less than 7 percent of the total allocation. This pattern of spending is most likely a result of a combination of severe budget constraints and the political pressure to provide updated modern medical care. The limited resources force the GOG to focus on the higher level of health care. A re-allocation of public funding from higher- to lower-level facilities is unlikely in the near future because of the need for state-of-art medical equipment and facilities that are much more expensive.

Another budgetary aspect is who contributes what. Table 17 shows some revealing patterns of recurrent expenditure by sources. First, it shows that for recurrent expenditure subsidies, the distribution is quite even across all levels of health facilities (last row). If anything, the percentage of subsidies is higher among clinics and health centers than among hospitals. However, in absolute terms, the subsidies in tertiary and regional hospitals are much higher than in district hospitals or clinics and health centers (see below).

Table 17. Recurrent Expenditure by Sources

<i>Percentage of</i>	<i>Total Admini- stration</i>	<i>Teaching/ Psychiatric hospitals</i>	<i>Regional hospitals</i>	<i>Training insti- tutions</i>	<i>District hospitals</i>	<i>Poly- clinics/ health centres</i>	<i>Weighted Total</i>
<i>IGF</i>	0.0	19.3	16.1	4.4	19.2	13.4	<i>12.3</i>
<i>Other</i>	0.0	0.1	0.0	0.0	0.0	0.0	<i>0.02</i>
<i>Health Fund</i>	9.1	3.9	3.6	2.3	2.4	0.5	<i>3.7</i>
<i>MOH Programs</i>	27.5	0.1	0.5	14.9	18.8	32.5	<i>16.4</i>
<i>GOG</i>	63.5	76.7	79.8	78.4	59.6	53.6	<i>67.6</i>
<i>% of subsidies*</i>	<i>100.0</i>	<i>80.7</i>	<i>83.9</i>	<i>95.6</i>	<i>80.8</i>	<i>86.6</i>	<i>100</i>

*Excluding the IGF funds.

Source: compiled from MOH Financial Report, December 31 1999: 7, Exhibit F.

Interestingly enough, the GOG's proportion of subsidies is only 64 and 54 percent, respectively, in administration (100 percent) and low-level health facilities (87 percent). If clinics receive the most subsidies through MOH programs in earmarked funds from donors,

this illustrates that these funds do not alter the objectives of GOG's subsidy schemes. This is a good example of the perverse incentives certain donor's conditionality can generate because of budget fungibility. An integrated budget allocation with a single GOG objective is recommended. In the long term this type of allocation will strengthen the GOG's capacity to effectively allocate their resources according to their objective of serving the entire population, perhaps with a focus on the poor.

3.8 The Financial Viability of the Health System

As stated above, there are four main channels to finance public spending in the health sector. As shown in table 18, the GOG and the IGF finance 63 percent of total health expenditures. However, if capital expenditures are excluded, which account for about 30 percent of total health expenditures, the GOG and IGF finance about 80 percent of total recurrent health expenditures. The remaining 20 percent are primarily financed by donor-pooled funds (most MOH programs are financed by donor-pooled funds) (also compare with Foster, 2000). This 20 percent contribution from donor funds is significantly lower than the 28 percent received in 1992 (Demery *et al* 1995). Figures from 1999 show a slight increase to 22.4 percent (Foster, 2000). The IGF, on the other hand, has increased from 4 percent in 1992 to 13 percent in 1998. The decrease in donors' funds has, for the most part, been replaced by an increase in user's charges (IGF).

Table 18. *Expenditure Distribution by Source of Funds (SOF) Group for the Year Ending December 31, 1998*

<i>Source of Funds</i>	<i>Total health Expenditures in 1998 cedis</i>	<i>As percent of total</i>	<i>Total recurrent Expenditures in 1998 cedis</i>	<i>As percent of Total recurrent expenditure</i>
GOG	193,988,333,604	53.8	170,265,286,014	68.2
Finance/Credits	76,986,426,770	21.4	0	0
Internally Generated Fund	33,048,884,438	9.2	32,215,818,733	12.9
Donor Pooled Health Fund	11,176,287,067	3.1	10,614,060,116	4.2
MOH programs	45,235,033,831	12.6	36,653,652,640	14.7
Total	360,434,965,710	100	249,748,817,503	100

Source: compiled from MOH Financial Report, December 31 1999: 1.

A further investigation into the subsidies of the different levels of facilities gives some insight into the differences among different health facilities in terms of their financial viability. Based on MOH estimates, the average cost of health service delivery is the same for one patient day or for three outpatient visits. MOH's estimates of total costs for each patient day in different types of facilities, excluding donors' funding, are listed in table 19. Based on the 1998 MOH Financial Report, we adjusted cost to include the donor subsidies. After the adjustment, the total cost of one outpatient visit in a sub-district clinic is higher than that in a district hospital, due to the high subsidies from MOH programs (which we assumed were financed by the donors).¹⁵ Interestingly, when the donor provided high subsidies, the

¹⁵ It should be noted that because the cost of providing public health services such as immunization is not separated from the curative expenditures, the higher cost at the clinics may reflect the fact that they provide a

GOG provided lower subsidies, as in the case of district hospitals and sub-district clinics. The percent of contribution from the users is approximately the same for all hospitals, but slightly lower for clinics.

Table 19. Estimated GOG Subsidy for Health Delivery (in 1998 cedis)

	<i>One patient day</i>			<i>One outpatient visit</i>			
	<i>Tertiary hospitals</i>	<i>Regional hospitals</i>	<i>District hospitals</i>	<i>Tertiary hospitals</i>	<i>-Regional hospitals</i>	<i>District hospitals</i>	<i>Sub-district clinics</i>
<i>MOH estimated cost</i>	39,009	35,848	14,347	13,003	11,949	4,782	4,562
<i>Total cost, adjusted for Donor contribution</i>	40,573	35,849	17,384	13,524	12,435	5,794	6,064
<i>% of subsidy from GOG</i>	76.7	79.8	59.6	76.7	79.8	59.6	53.6
<i>% of subsidy from donors</i>	4.0	4.1	21.2	4.0	4.1	21.2	32.9
<i>Total subsidy as percent of total cost</i>	80.7	83.9	80.7	80.7	83.9	80.7	86.6
<i>Total subsidies</i>	32,742	30,077	14,029	10,914	10,433	4,676	5,251

* Source: *Health Sector 5 Year Program of Work, 1997–2001*, 1998 Review, joint MOH–Health Partners, April 1999. The estimated average costs are derived from provisional 1998 recurrent GOG allocations plus IGF for the three types of hospitals, divided by total patient day equivalents. Donor funds are not included in the cost estimates. The adjusted cost with donors' funds is based on the proportion of donors' funds in the total budget (*MOH Financial Report*, December 31, 1998: 7). The subsidy for sub-district outpatients were estimated from the data compiled from the regional health sector reports.

In general, the percentage of subsidies favors health clinics, due to the large subsidies from donors. The share of health aid as a proportion of total aid has almost doubled between 1997 and 1999, increasing from 4.4 percent to 8.2 percent. The MOH has also been receiving a larger share of its total budget from donors—11 percent in 1997 to 22 percent in 1998 and 35 percent in 1999 (Foster, 2000). However, it appears that the donors' efforts to allocate funds to lower-level health facilities have mixed results. A positive result is that the tertiary and regional hospitals are now largely sustainable on recurrent expenditures from internal resources, with only 4 percent subsidies from donors' funds. However, they still rely heavily on donors' funds for capital investments. The less positive results include the GOG's tendency toward a budget pattern favoring higher-level health care; and that the lower-level health care system is not sustainable, with more than 30 percent of its budget coming from donors' funds. Any withdrawal of donor funds from the recurrent expenditures category must be carefully managed in order to avoid a negative impact on basic-level health care.

large proportion of public health services. Therefore, the actual cost of one outpatient visit may very well be below the estimate.

3.9 Regional Health Outputs and Health Facility Utilization

The previous section shows that health care provision, both in terms of health facilities and health personnel, favors more affluent regions. Does this higher health provision translate into better health outputs? There are not many health output indicators available at a regional level. Table 20 presents the indicators of the percentage of children between 12 and 23 months who are fully immunized, which is available at very disaggregated levels. The noticeable phenomenon is that despite the much more extensive health facilities in more affluent areas, the percentage of immunized children is only marginally higher, if any. For example, the percentage of fully immunized children in Western and Ashanti, the two richest regions next to Accra, is very similar to that of Upper West and Upper East, the two poorest regions. The most striking fact is that, in Volta, despite its extensive health clinic network, only 60 percent of children are fully immunized, the fourth lowest rate among the 10 regions. Upper West and Upper East, despite their sparsely distributed health clinics, have immunization rates higher than the Volta region.

Table 20. Fully Immunized Children (12–23 months)

Region	1988	1993	1998	Percent change between 1993 and 1998	Average outreach sites per health facility		
					1996	1998	Percent change
Greater Accra	60.7	75.0	73.7	-1.7	9	16.2	80.0
Western	31.8	49.2	67.4	37.0	6	9.2	53.3
Ashanti	44.0	64.3	67.8	5.4	5	-	-
Volta	41.3	52.7	59.8	13.5	5	17.9	258.0
Brong Ahafo	52.9	57.1	66.6	16.6	6	7.6	26.7
Eastern	22.7	56.3	52.1	-7.5	8	5.3	-33.8
Central	65.6	39.2	49.1	25.3	10	14.2	42.0
Northern	50.0	39.1	47.4	21.2	11	14.7	33.6
Upper West		40.0	68.0	70.0	8	11.9	48.8
Upper East		64.3	65.8	2.3	5	7	40.0
Total Urban	60.3	71.1	72.3	1.7			
Total Rural	37.6	47.8	58.0	21.3			
Total National	46.7	54.8	62.0	13.1	6,677	10,249	53.4

* For children 12–23 months, BCG, 3 doses of DPT and Polio and measles.

Source: Demographic Health Survey 1988, 1993 and 1998, based on the secondary source from *The Health Sector in Ghana, Facts and Figures, 1999*.

** POW, 1999, MOH.

Another noticeable comparison is the rural–urban difference and the improvements in the last five years. Table 20 shows that the gap between the rural and urban areas has narrowed significantly. Between 1993 and 1998, the immunization rate increased by less than 2 percent among urban children, but by more than 20 percent for rural children. In Upper West, the poorest region, the immunization rate has improved by 70 percent, while in Greater Accra, the richest region with the best health facilities and personnel, the immunization rate remained the same. In 1998, over 90 percent of the population in Greater Accra had access to a health facility within 30 minutes, but only 74 percent of children were fully immunized.

In contrast, in Upper East, a largely rural region, only 16 percent of the population have access to a health facility within 30 minutes, but 66 percent of children are immunized. These indicators highlight the complex pattern of outcomes and their apparent contradiction with the pattern of input allocations.

The total number of outreach sites increased by more than 50 percent from 1996 to 1998 (*Health Sector 5-Year Program of Work, 1997–2001*, 1998 Review, joint MOH–Health Partners, April 1999:29), but the immunization rate only increased by 13 percent from 1993 to 1998. This means that the money spent on the outreach sites produced limited results in children's immunization. The results vary widely across regions. For example, in Accra, the outreach sites increased by 80 percent, but produced no increase in the immunization rate. For Upper West region, the outreach sites increased by about 50 percent, and the immunization rate increased by 70 percent. Based on the information available, it is not clear why this is the case. Appropriate policy recommendations must be based on an understanding of the reasons behind these different performance levels.

The relatively low immunization rate in more affluent areas compared with their available health facilities and personnel illustrates that not only is public spending biased toward urban areas, it is probably also biased toward curative capacity in urban areas. The immunization rates in more affluent regions are not favorable given the resources that they have invested in the health sector. In contrast, public spending in less affluent areas appears to be much more effective in terms of immunizing children, probably due to the outreach services. It should be noted that less than 60 percent of rural children are fully immunized, although this is a vast improvement compared with five years ago. It is, however, true that exemptions in poor areas for children under five have contributed to the substantial improvements in immunization levels in those regions. The experiences in Western and Upper West regions should be further investigated to determine the reasons behind their rapid increase in immunizing children.

Another healthcare output that must be examined is the outpatient visits per capita and hospital admission per 1,000 population. Based on MOH estimates, the optimum rate of outpatient visits should be between 0.75 and 1.0.¹⁶ Table 21 shows that in all regions the rates are below the optimum level, but are particularly low in poor regions. For example, in Upper East, the poorest region, the rate is 0.17, meaning that, on average, a person visits a health facility every six years. In Greater Accra, on average, a person visits a health facility every other year.

¹⁶ *Health Sector 5-Year Program of Work, 1997–2001*, 1998 Review, joint MOH–Health Partners, April 1999.

Table 21. Health Output: Outpatient Visits and Hospital Admissions

Region	Outpatient Visits per capita*	Hospital Admissions per 1,000 population*	Hospital Bed Occupancy %**	
			Regional	District
Greater Accra	0.52	32.6	145.5	122.9
Western	0.38	30.4	53.4	80.9
Ashanti	0.41	29.0	--	56.5
Volta	0.42	33.4	66.3	53.5
Brong Ahafo	0.50	29.7	61.9	80.1
Eastern	0.29	20.1	53.0	80.1
Central	0.26	19.6	38.0	78.3
Northern	0.18	20.5	75.1	75.3
Upper West	0.24	30.8	54.1	49.4
Upper East	0.17	20.6	58.6	57.2
National	0.35	26.7	71.5	71.3

Source: *The Health Sector in Ghana, Facts and Figures, 1999*, pp. 20, 22, 1999, MOH.

** 1999 POW, p. 102.

Based on the MOH 1999 5-Year Program of Work (POW), the hospital admission rate is low compared with other countries in Africa. Its medium-term aim is to bring the rate closer to 50 hospital admissions per 1,000 population. While POW did not suggest how to bring the number to 50, from the analysis of this study, it is apparent that expanding the existing facilities will not make a great difference. The bed occupancy rates are low, especially among district hospitals. Accra is the only exception, where the bed occupancy rate reaches 146 percent at the regional hospital and 122 percent at the district hospital (see table 21).

Table 22 gives estimates on the number of patients a doctor sees each working day. It shows a general shortage of doctors in most of regions except in Greater Accra and Ashanti. It should be noted that the doctors in these two regions probably see more difficult cases, and would need to spend more time per patient, thus the actual need for doctor's time could be higher than in other regions. The nurses' workload is much more evenly distributed than the doctors'. However, in addition to curative health care, the nurses also provide public services, such as immunization.

Table 22. Outpatient Visits and Hospital Admissions in 1998, by Region

Region	Out-patient Visits ^a	Hospital Admissions ^a	Average Length of Stay ^b	Estimated Out-patient Visits 1998 ^b	Total number of doctors	Total number of Nurses	Out-patient Visits per doctor per day ^c	Out-patient Visits per Nurse per day ^c
Greater Accra	1,159,726	71,069	8.5	2,965,816	469*	4,692*	30	3.0
Western	706,405	57,218	9.0	2,255,086	72	1,556	149	6.9
Ashanti	1,152,758	91,083	4.8	2,464,353	278*	2,319*	42	5.1
Brong Ahafo	923,773	46,373	3.5	1,411,526	71	1,006	95	6.7
Volta	570,719	51,625	5.5	1,415,708	73	1,940	92	3.5
Central	408,188	30,336	8.1	1,146,742	49	1,447	111	3.8
Eastern	741,171	58,681	7.2	2,005,222	67	2,014	143	4.7
Northern	569,545	41,302	3.4	993,941	44	1,082	108	4.4
Upper West	165,970	15,014	5.3	402,704	16	459	120	4.2
Upper East	234,971	20,043	5.3	555,390	24	740	110	3.6
National	6,633,226	482,774		15,616,488	1,163	17,255	64	4.3

*Including doctors and nurses in the teaching hospitals, respectively.

^a Source: *The Health Sector in Ghana, Facts and Figures, Draft, 1999*. It is not clear if the outpatient visits and hospital admissions include those from the two teaching hospitals, but we regarded them as inclusive of the two teaching hospitals.

^b A weighted average stay is calculated based on the average length of stay at district and regional hospitals (POW, MOH 1999, page 103), respectively. The weights are the proportion of the in-patient days in the regional and district hospitals, respectively, reported in 1998 Regional Health Reports. The estimated outpatient visits are then calculated based on one patient day equivalent to three outpatient visits.

^c A full-year working time is assumed to be 210 days, that is 5 days per week for 42 weeks.

In conclusion, the preventive measures of health outputs do not correspond to health inputs, but the curative outputs are more or less consistent with the pattern of health facility and personnel distribution. It is apparent that to improve health services, the efficiency and the priority (basic versus tertiary and preventive versus curative care) of the system must be addressed before expanding the budget envelope. In addition, the demand-side issues are not addressed as much as necessary in recent health policy reforms. As we discussed in this section, improving access to health care may not necessarily increase the utilization of health services, especially if distance to health centers is not the reason that leads to lower usage.

3.10 Benefit Incidence Analysis

The above sections have focused on the efficiency of the health system. In this section we investigate who benefits from public health services. The 1998 Ghana Living Standards Survey asked the surveyed individuals if they had suffered from an illness and if they had consulted a health professional. Based on this information, we calculated the sample morbidity prevalence and the consultation rate. Similar household surveys were also carried out in 1989 and 1992, thus allowing us to compare the changes over these years. Based on information from GLSS2, GLSS3, and GLSS4, table 23 shows that the frequency of reported illness increased by about 10 percent between 1992 and 1998.¹⁷ Focus is drawn to the fact

¹⁷ We compared 1992 with 1998 data because the two questionnaires ask the same question: if the individual surveyed suffered from an illness in the last two weeks. The 1989 survey asked if the individual surveyed

that reported illnesses have increased rapidly among the poor (the bottom two quintiles). In contrast, health conditions among the most affluent population somewhat improved. In rural areas, reported illnesses increased by 13 percent, while they only increased by one percent for the urban population.

Table 23. Frequency of Reported Illness by Expenditure Quintiles

Expenditure quintile	Percentage of people who reported illness			
	1989	1992	1998	Percentage change from 1989-98
1 - the poorest	31.8	32.6	45.8	40.5
2	36.7	37.4	47.7	27.6
3	39.8	45.2	48.0	6.2
4	43.8	46.6	48.2	3.5
5 - the richest	45.7	57.6	54.6	-5.2
Urban	38.9	42.9	43.4	1.2
Rural	39.8	44.4	50.4	13.5
Total	39.5	43.9	48.4	10.3

Sources: Demery *et al.*, and staff calculation from GLSS4.

Among people who reported an illness, we further examined the percentage of people who sought treatment from public or private facilities, if any. Table 24 shows several noticeable changes between 1992 and 1998. First, the percentage of people seeking no care increased for all but the richest income groups. Second, the percentage of people who sought public healthcare has decreased significantly, especially among the poor—by about 25 percent. In contrast, the percentage of people who sought private, modern healthcare has increased significantly. It appears that the public healthcare system is losing ground to the private health providers. Based on the 1999 POW, the patient satisfaction rate for public health services is only 10 percent for district hospitals, down from 37 percent in 1997, and 13 percent in 1996.

suffered from an illness in the last four weeks. To make the percentage comparable, the 1992 and 1998 figures were multiplied by 2, respectively.

Table 24. Treatment Seeking among Self-reported Ill People

Expenditure quintiles	Percentage of								
	ill seeking no care			ill seeking public health care			ill seeking private modern health care		
	1992	1998	percentage change from 1992-98	1992	1998	percentage change from 1992-98	1992	1998	percentage change from 1992-98
1 - poorest	58.5	63.4	8.3	22.8	17.4	-23.9	14.3	17.4	21.4
2	54.5	64.3	18.0	24.5	18.5	-24.6	15.6	18.5	18.4
3	53.6	59.0	10.1	24.5	23.1	-5.7	17.4	23.1	32.8
4	49.1	52.7	7.4	23.6	23.4	-0.7	20.6	23.4	13.8
5 - richest	43.3	44.0	1.5	27.9	29.4	5.3	23.9	29.4	22.9
Urban	42.6	49.4	16.0	30.5	26.3	-13.7	22.0	26.3	19.6
Rural	54.8	60.4	10.3	22.3	20.3	-9.1	17.6	20.3	15.1
Total	50.8	57.6	13.4	25.0	21.8	-12.8	19.0	21.8	14.8

Sources: Demery *et al* (1995) and 1998 calculation based on GLSS4 data.

Demery *et al* (1995) also estimated unit subsidies for per outpatient visit in 1989 and 1992. We did a comparison on the trend of subsidies between 1989 and 1998. Some caution should be taken in interpreting this comparison because the data sources and calculation methods are different. First, their estimates are based on a budget survey from five more affluent regions (Accra, Ashanti, Western, Volta, and Eastern regions), but the MOH estimates that we use are based on the national coverage. Second, they divided facilities into hospitals and clinics, while the MOH divided facilities into tertiary, regional, and district hospitals, and sub-district health facilities. Third, they calculated subsidies by Accra and the other four regions, while the MOH estimates calculated the national average.

Based on the information available, the common level of disaggregation between the two estimates are hospitals and health clinics at the national level. These are highly aggregated figures, but they are the best comparison that we can do currently. Despite all the caveats, we hope that this comparison can still shed light on the evolution of the public subsidies. For Demery's estimates, we decided to use the figures from the other four regions, because Accra's estimates of clinic unit subsidies are three times higher than that of hospital subsidies, which seems unreliable. The weighted average subsidies based on the proportion of outpatient visits are calculated, as shown in table 25. The worrisome trend is that the gap between the higher- and lower-level facilities has increased rapidly. In 1989, the unit subsidy was the same between clinics and hospitals, but in 1992 the unit subsidy in clinics was only 54 percent of the hospitals' subsidy. It appears that the hospital subsidy has increased steadily, while the clinic subsidy has decreased.

Table 25. Unit Subsidy per Outpatient Visit, in 1998 cedis

	<i>Hospital</i>	<i>Clinics</i>	<i>Clinic subsidies as % of Hospital's</i>
<i>1989</i>	6,048	6,104	101
<i>1992</i>	6,853	6,068	89
<i>1998</i>	9,709	5,251	54
<i>Percentage change between 1992 and 1998</i>	42	-13	—

Source: 1989 and 1992 figures are estimated by Demery *et al* (1995), 1998 figures are compiled from Regional Health Reports

Given the above analysis on the subsidies by facilities, the question arises: How patients of different income levels utilize different types of health facilities, and if each income group gets a fair share of the subsidy? Table 26 presents an analysis of this issue. First, it shows that for all the self-reported ill people, only about 55 percent sought public services. Further calculation shows that among the poorest quintile, the percentage is only about 50 percent; this implies that one-half of the poorest patients sought private healthcare (not shown in the table).

Table 26 also reveals that higher-level health facilities tend to serve patients of higher incomes. For example, among patients who visited public hospitals, more than 30 percent are from the most affluent expenditure group, while only 10 percent are from the poorest quintile. For private hospitals, a similar pattern exists, although it is less skewed toward the rich. This is probably because large public hospitals are located in urban areas that are too expensive for the rural poor to reach or in which to stay. In contrast, private hospitals tend to be located in smaller cities or towns where they are less expensive to reach. Additional calculation shows that among all urban ill people, 43 percent went to public hospitals, while in rural areas, only 19 percent used public services. It should be noted that among people who went to traditional healers, the poorest population represent the largest proportion.

Table 26. Type of Treatment by Expenditure Quintile

Public Facilities: Column percent utilization rates						
	<i>Hospital</i>	<i>Dispensary/ pharmacy</i>	<i>Clinics</i>	<i>Consultant's/ patient's home</i>	<i>Other</i>	<i>Total</i>
<i>1 - poorest</i>	9.5	Number of observations are too small to be analyzed	23.4	Number of observations are too small to be analyzed	49.3	18.6
<i>2</i>	14.6		22.7		17.3	18.6
<i>3</i>	21.3		21.7		26.7	21.6
<i>4</i>	23.8		17.1		6.2	19.6
<i>5 - richest</i>	30.8		15.3		0.5	21.6
<i>Urban</i>	50.3		13.2		9.1	30.5
<i>Rural</i>	49.7		86.8		90.9	69.5
<i>Total number of patients</i>	4,022	67	3,708	49	605	8,451
Private Facilities: Column percent utilization rates						
	<i>Hospital</i>	<i>Dispensary/ pharmacy</i>	<i>Clinics</i>	<i>Consultant's/ patient's home</i>	<i>Other</i>	<i>Total</i>
<i>1 - poorest</i>	14.6	9.5	23.3	24.6	25.7	21.4
<i>2</i>	14.4	13.5	15.8	24.9	21.0	17.8
<i>3</i>	16.8	7.2	17.2	14.5	23.2	16.4
<i>4</i>	25.6	24.2	21.8	24.7	19.4	22.8
<i>5 - richest</i>	28.7	45.7	21.8	11.3	10.6	21.6
<i>Urban</i>	32.3	69.8	34.0	7.9	23.9	31.1
<i>Rural</i>	67.7	30.2	66.0	92.1	76.1	68.9
<i>Total number of patients</i>	835	670	3310	1,318	796	6,929

Table 26 shows that among public health services under the category of "Other," almost 50 percent of patients are from the poorest quintile. The "Other" category probably included healthcare services lower than the clinic level, such as outreach sites or mobile health services. In short, the poor or rural population, tend to use basic healthcare facilities more than hospitals, probably due to the high costs of both transportation and higher-level healthcare services.

Because of the availability of information on household visits to health facilities and the unit subsidies, it is also possible to calculate the distribution of health subsidies among different income groups.¹⁸ As shown in table 27, the subsidy system remains in favor of the richest quintile, but with a significant improvement for the middle expenditure group. In addition, rural areas gained significantly in their share of public subsidies. It should be noted that at the time of analyzing 1989 and 1992 data, donors' subsidies were not included due to a lack of information. In our current analysis we did include the donor's subsidies. The favorable change toward the rural residents is most likely a result of health reform programs that promote basic health services in rural areas. It appears, however, that this effort has reached mostly the less poor population in rural areas, rather than the poor. It should also be noted that with a rural population of 70 percent, a 60 percent subsidy is still low.

¹⁸ The Dispensary, Pharmacy, Maternity Home, and Other visits were counted as clinic services.

Table 27. A Comparison of Benefit Incidence of the Public Health Subsidies

	1989	1992	1998
1 - poorest	12.3	11.6	12.5
2	13.3	15.5	12.1
3	17.2	18.7	25.7
4	26.7	21.4	18.8
5 - richest	30.6	32.9	31.0
Urban	42.0	48.7	38.8
Rural	58.0	51.3	61.2

Sources: for 1989 and 1992 data see Demery *et al.*, 1995, 1998 figures are based on staff calculations.

3.11 Health Statistics

In the process of writing this paper, it came to our attention that the collection of health data and statistics needs to be revisited. Ghana has been developing a comprehensive accounting system for its health sector. At the aggregated level, the information is available. However, at the disaggregated level, it is difficult to obtain data that may have been previously available, partly because of the storage system. Following are a few examples.

- First, the budget and the services provided below the clinic level are largely lumped with the clinic-level statistics. Because a large proportion of the poor seek health care below the clinic level, it is necessary to separate these two categories of statistics in order to target the public services to the poor.
- Second, we found that the statistics from the regional reports are often incomplete, and are not provided with a consistent format among the 10 regions. In order to track regional differences, it is essential to keep standardized statistics that should be reported in a statistics appendix with a standard format, as opposed to the ad hoc way they currently appear in the reports.
- Third, the statistics from private health services are often missing, making it impossible to do a complete evaluation of health service provision.
- Fourth, the calculation of some basic indicators, such as subsidy per one outpatient visit, should be standardized. Currently, each analysis calculates its own subsidy with whatever data is available and the chosen methodology. This makes it impossible to reasonably compare, for example, the trend of public expenditure in benefiting the poor.
- Finally, the MOH publishes, on an annual basis the health budget data aggregated at the national level. However, the historical data are not stored electronically. Thus, any attempt to do an analysis over a period of time must be confined to the national level published data. It would be useful if the MOH developed a data storage system that can recall historical data on a more disaggregated level.

These are just a few examples, but a comprehensive plan to collect and store health statistics must be carefully laid out. In addition, the health module in the household survey data also needs to be modified to be used with the health statistics.

3.12 Summary of Findings

The health section evaluated health care provision from several aspects, including (a) efficiency of the health system given the amount of money spent on public health care; (b) the pattern of public resource allocation; and (c) the pattern of the population using the health facilities. The main findings are as follows:

- The efficiency of the public health system is below average compared with other West African countries.
- Health facility distribution favors more affluent regions, as a result of both higher public and private investments.
- Physicians are concentrated in the two teaching hospitals and the more affluent areas.
- GOG health spending favors the higher-level health facilities, largely teaching and regional hospitals.
- Donors' funds favor recurrent expenditures of lower-level health facilities.
- Capital investment is skewed toward higher-level health care, but re-allocating expenditures to lower-level health facilities is unlikely in the near future.
- Among the 10 regions, the availability of health facilities and personnel do not result in better health indicators. Public expenditures on the outreach sites yield better results in poor rather than in more affluent regions.
- Donors' efforts to enhance lower-level health services mainly resulted in the withdrawal of GOG funding from the lower-level health facilities; the system remains highly curative and urban oriented.
- The self-reported morbidity prevalence has increased significantly among the poor population.
- The poor and rural populations primarily use clinics and the services below the clinic level, while the urban and more affluent populations primarily use hospital-level services.
- Given that public expenditure spending is biased toward the higher level of health services, and that the poor and rural populations tend to use the lower-level health

services, public expenditures remain biased toward the urban and the non-poor, a pattern that has not changed since the last study of 1989 and 1992 data.

In addition, the level of public expenditure on health is low compared with other West African countries. For instance, the ratio of total health expenditure to GDP has been declining from 2.3 percent in 1997 to 1.9 percent in 1999. The most important message of the health section is that although the public expenditure level is low, merely increasing expenditures will not improve the health outcome, nor will it improve the services for the poor, given the low efficiency of the system and highly curative and urban-oriented budget pattern. Based on the information and data we have collected in this paper, the first step toward a more efficient and more poor-oriented system is to develop a consistent health statistics collection system and storage that can recall these statistics at disaggregated levels. In addition, based on the available information, some regional variation in the efficiency of health services could be investigated to find ways to improve the health system's efficiency. Issues such as why the Upper West region has achieved a relatively high immunization rate with limited resources, and why the district hospitals have such a low patient satisfaction rate also need to be addressed. Our discussions have also highlighted the importance of examining demand-side issues as a way of improving the relevance and utilization of health services. Only after the efficiency of the health system and the quality of healthcare have improved, with a consideration for a more rural- and pro-poor health system, would a higher level of public expenditure make a difference. This does not, however, imply that existing allocations for health are adequate.

Section 4: Concluding Remarks

The objective of this paper is facilitate a critical dialogue rather than provide specific suggestions in formulating policy recommendations. Thus, we conclude our paper with the opportunities and challenges faced by these two public sectors as we see them based on our analysis. We hope the issues that we identified will stimulate further discussions among policymakers and civil society alike, and result in bringing the efficiency and pro-poorness of public services to the center of the reforms, and the actions that follow will improve the services for every segment of the population in Ghana.

The GOG's policies and programs in the education sector have enabled improvements in the education system toward a broad-based, higher quality education. Overall, Ghana has increased its enrollment rates at all levels and reduced the gender gap. The benefit incidence analysis also shows that public education is becoming more evenly distributed across income groups, although it remains not very pro-poor. In addition, Ghana has just begun implementing a well-designed financial record keeping system.

However, there remain unmet challenges in the Ghanaian education sector that are priority areas for action. These include:

- *A critical shortage in teaching facilities, capacity, and enrollment in the three poorest regions*
- *Extremely low enrollment ratio above the basic education level*
- *Low quality of public education*
- *Weak capacity in data storage and analysis.*

In the health sector, Ghana has made considerable strides in terms of broad health indicators. The efforts to provide affordable and quality basic healthcare to all are making progress in the right direction. The rural population's access to healthcare has substantially increased. In addition, Ghana has begun implementing programs for HIV/AIDS that have a high likelihood of arresting the increasing trend before it becomes a national epidemic.

Here too Ghana has an unfinished agenda. The analysis in this paper has shown that the following issues need to be addressed sooner rather than later:

- *High regional disparity in accessibility to health facility and personnel*
- *Public spending is not linked to health output and outcomes*
- *Public health spending is pro non-poor*
- *Weak capacity in terms of monitoring and evaluation*
- *The donors' agenda has contributed to the segmentation of health sector budgeting.*

The challenge for Ghana is how to address these issues in the education and health sectors while ensuring public and private provision is effectively harnessed in the context of increasing fiscal constraints.

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